
ASSESSMENT OF OIL AND GAS INDUSTRY

ECONOMIC AND FISCAL IMPACTS IN COLORADO IN 2010

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EXECUTIVE SUMMARY

The oil and gas industry, along with nearly all extraction industries, inherently provides substantial economic benefits due to its integrated supply chain, high wage jobs, and propensity to sell nationally and globally. It brings in outside investment and often operates in rural areas where high wage jobs are scarce and industry is fleeting.

Much of Colorado's oil and gas is sold outside of the state, contributing wealth to owners, employees, governments, and schools, all of which are beneficiaries of oil and gas revenues. In 2010, Colorado's oil and gas industry recorded \$9.2 billion in production value, accounting for nearly 22,400 direct drilling, extraction, and support jobs with average annual wages in excess of \$103,000. Coupled with the oil and gas supply chain within Colorado—transportation, refining, wholesalers, parts manufacturers, and gasoline stations—direct employment totaled more than 43,800 jobs, with average wages over \$72,000, which are 51% higher than the state average for all industries. Collectively, this industry contributed nearly \$3.2 billion in employee income to Colorado households in 2010, 2.6% of total Colorado salary and wages. In addition, more than \$596 million went to private land owners in 2010, assuming private land owners capture royalty and lease terms similar to those of the government.

The oil and gas industry contributed substantial public revenues in 2010—totaling more than \$1.1 billion, of which \$572 million derived directly from severance taxes, public leases, public royalties, and property taxes. The oil and gas industry is subject to taxes and assessments beyond what other industries contribute. Ad valorem taxes, for instance, are 3 times higher for oil and gas production than for commercial property within the state and 11 times higher than residential property. Oil and gas property taxes topped \$360 million in 2010. Severance taxes paid by the industry totaled \$63.7 million in 2010. The industry also paid \$242 million in royalties to state and federal governments in 2010, of which \$123.8 million stayed within Colorado. The State of Colorado received almost \$16.5 million in state lease revenue from oil and gas in 2010, a record high. Oil and gas prices tended to be relatively volatile from 2000-2010, causing government revenue driven by production value to fluctuate year to year. Price stability is expected moving forward, primarily due to technological improvements in drilling and extraction, and greater reserve estimates.

While this industry has substantial operations on state and federal lands, a vast majority—more than 71%—transpires on private lands. The oil and gas industry is dominated by gas production, with natural gas accounting for 74% of sales-based value in 2010, oil accounting for 24%, and carbon dioxide, 2%. The top five oil- and gas-rich counties in 2010 were Garfield, Weld, La Plata, Rio Blanco, and Las Animas. Together, they accounted for 88%, or nearly \$8.1 billion, of oil and gas production in 2010.

While oil and gas does not have the largest tax bill in the state, the industry is among the largest contributors to state and local taxes in Colorado. This industry relates to other industries like manufacturing, which imports investment, exports goods, pays above-average wages, and contributes substantially to public revenues; retail trade, which facilitates the collection of public revenues through taxes on goods sold; and gaming, which pays additional taxes and operates in rural areas.

PROJECT PURPOSE

The purpose of this study was to provide nonbiased, third-party research to area stakeholders of the economic and fiscal impacts of the oil and gas industry in the state of Colorado.

The oil and gas industry is a significant employer in the state of Colorado, with a vast supply chain that includes surveyors, extractors, transporters, and refinery workers. This industry also contributes substantial revenue to state and local governments in the form of income and sales taxes, property taxes, royalties, and fees. This project quantified the industry's economic and fiscal impacts, as well as compared them to those of other industries in the state. As directed by the Colorado Oil & Gas Association (COGA), this project addressed the following three inquiries:

- Overview of all revenue paid by the oil and gas industry to the state of Colorado and local governments.
- Comparison of the Colorado state and local tax burden for the oil and gas industry versus other industries in the state.
- Overview of the oil and gas industry's total economic contribution to Colorado compared to other industries (for example, is the industry the largest in the state?).

METHODOLOGY

This study examined economic impacts and public revenues associated with the oil and gas industry in Colorado. The analysis relied on publicly available secondary data—no surveying was conducted for this study. To this end, the available known statewide data specific to the industry includes:

- Employment
- Wages
- Assessed property values (land, improvements, and personal)
- Royalties (federal and state)
- Leases (federal and state)
- Severance taxes
- Rig counts
- Well counts
- Production
- Prices

Data collected were used to estimate statewide undisclosed or unknown variables related to the industry, such as sales and income taxes. Additionally, fewer variables were disclosed at the county level. The research team took the known variables, such as employment and production by county, and estimated that county's contribution to royalties, severance taxes, leases, and so on. The estimates that result from this methodology treat constant the prices and quality of oil and gas from basin to basin, as well as keep

the ratio of public to private land constant from county to county in order to formulate county-level estimates.

To compare and contrast the oil and gas industry with other industries in the state in terms of economic and revenue contributions, the research team selected three disparate industries based on data availability: retail trade, manufacturing, and gaming. The research team sought publicly and privately available information for each industry, including:

- Employment
- Wages
- Assessed property values (land, improvements, and personal)
- Retail sales (direct from retail trade)
- Value of real estate

From this information, the research team made estimates regarding sales and income taxes directly related to each industry and its employees.

High-level economic comparisons for the state of Colorado were conducted using IMPLAN input-output modeling software.¹ IMPLAN generates industry multipliers based on trade flows and industry profiles of the study area. Multipliers refer to the interindustry relationships within a study area in terms of input-output (I-O) economic impacts.² Multipliers are useful for analyzing project decisions to understand the incremental impacts that such activities have on the local economy. IMPLAN multipliers are static and thus do not consider large-scale disruptive impacts on the economic fabric without calculating specific infrastructure changes.

For the purpose of this study, all multipliers are comprised of direct, indirect, and induced effects. *Direct* refers to direct spending or employment in the study industry or firm. *Indirect* is the spending or employment in related industries impacted by spending or employment in the study industry or firm. *Induced* refers to changes in household expenditures impacted by spending or employment in the study industry or firm.

State and local fiscal impacts are aggregated by the IMPLAN model based on tax rates and tax burdens absorbed by industries. The fiscal impacts are based on activity that occurs in Colorado. When public reporting allowed for the aggregation of detailed data, this superseded IMPLAN data (e.g., oil and gas severance taxes, property taxes).

¹Minnesota IMPLAN Group, Inc. (MIG), Hudson, WI, www.implan.com.

²Bureau of Economic Analysis, Regional Multipliers, <http://www.bea.gov/scb/pdf/regional/perinc/meth/rims2.pdf>, retrieved January 20, 2010.

The oil and gas deposits around Colorado are typically cited by basin. Examples of major basins include:³

- Denver-Julesburg
- Paradox
- Piceance
- Raton
- San Juan

This study highlights impacts statewide and by selected county, since counties are more discernible than basins. The following counties that have high levels of oil and gas activity were identified for detailed analysis:

- Cheyenne County
- Garfield County
- La Plata County
- Las Animas County
- Mesa County
- Rio Blanco County
- Weld County
- Yuma County

LITERATURE REVIEW

Several studies of the oil and gas industry's economic impact have been conducted recently. Among those, Louisiana, Utah, California, Colorado, and Wyoming produced economic impact reports estimating the industry's output, employment, and fiscal impacts in their respective states. Oil and gas companies' economic output make up a material portion of these states' gross state product, 6.1% in Colorado and 18.8% in Louisiana, for example. Different studies present strikingly diverse multipliers for this output; in Louisiana \$1 million of direct output generates \$0.34 million of indirect output, according to the LSU Center for Energy Studies, while in California \$1 million of direct output generates \$1.91 million of indirect output, according to the California Economic Strategy Panel. Employment multipliers, too, vary; in Louisiana 1,000 direct jobs are estimated to generate 899 jobs, according to the LSU Center for Energy Studies, while in Wyoming 1,000 direct jobs are estimated to generate 3,645 jobs, according to the University of Wyoming. The average wage in oil and gas was consistently reported as higher than states' average wages.

The oil and gas industry's fiscal impact was addressed in many studies. According to a study conducted by the LECG Corporation in 2008, Colorado imposes the fourth-highest tax burden on oil-producing companies of the top 10 oil-producing states. Each oil-producing state has a different strategy for taxing the industry.

³Colorado Oil and Gas Conservation Commission, <http://cogcc.state.co.us/>, accessed July 17, 2011.

Impacts measured include \$18.2 million property taxes paid in Utah in 2006, plus \$30.3 million federal mineral royalties, according to a University of Utah study, and \$2.0 billion in extraction tax paid in Wyoming, plus more than \$62.8 million in sales and use taxes paid. Although currently being phased out, a program that allowed in-kind tax payments for oil and gas companies was particularly lucrative for the government, according to a study by the Bureau of Ocean Energy Management, Regulation and Enforcement.

While the oil and gas industry is a boon to states' economies, its positive impacts may be on the decline. A study, conducted by the Science Applications International Corporation and the Gas Technology Institute in 2010, projected economic impacts of the oil and gas industry over the long haul. The study forecasted consumer prices increasing and oil and gas employment decreasing over the next 20 years.

For more details of these studies, please see Appendix 1.

DEFINITIONS

Barrel (Bbl)

A unit of measurement often used for oil, a barrel is equal to 42 gallons. MBbl is 1,000 barrels; MMBbl is equal to 1 million barrels.

British Thermal Unit (Btu)

A unit of measurement often used for natural gas, a Btu is the amount of energy required to raise a pound of water 1°F. MBtu is 1,000 Btu; MMBtu is equal to 1 million Btu.

Cubic Feet (cf)

A unit of measurement often used for natural gas, cubic feet measures the volume of gas. One cubic foot is approximately equal to 1,000 Btu. Mcf is 1,000 cubic feet; MMcf is equal to 1 million cubic feet.

Gross Domestic Product (GDP)

A measure of economic activity, GDP is the total value added by resident producers of final goods and services.

Gross Output

The total value of production is gross output. Unlike GDP, gross output includes intermediate goods and services.

Nonemployers

Federally taxable businesses without paid employees are classified as nonemployers. Often, these are self-employed individuals running their own small businesses.

Public Lease Revenue

Oil and gas activities on public lands provide state and federal governments with lease revenue. Public lease revenue includes base rent payments, plus premiums bid over that base rent, known as bonuses.

Public Royalty Revenue

Oil and gas activities on public lands provide state and federal governments with royalty revenue. Royalty payments give the government a portion of proceeds from oil and gas sales. Federal lands require minimum royalties when there is no production value.

Receipts by Nonemployers

Nonemployer receipts are gross sales and commission income reported by nonemployers.

Severance Taxes

Severance taxes are taxes that states charge for the removal of nonrenewable natural resources. In Colorado, marginal rates range from 2% to 5%, depending on gross income from production. Severance taxes are paid net of an ad valorem property tax credit, when available.

Value Added

The contribution of an industry or region to total GDP, value added equals gross output, net of intermediate input costs.

ECONOMIC OVERVIEW

Gas Production and Price Stability

The oil and gas industry's economic and fiscal impacts considered in this study occur at a time of volatile commodity prices; a shaky employment recovery; soft retail sales; and depressed housing prices. While commodity volatility has been true over the past half-decade, analysts' expectations for natural gas are for comparatively lower volatility in both the short run and the long run due to reserve discoveries (e.g., shale gas), technological improvements in drilling and extraction, greenhouse gas (GHG) rules, and integrated national and continental pipelines.

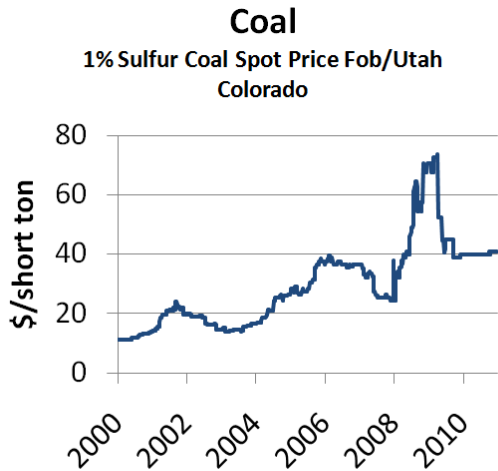
According to the *Annual Energy Outlook 2011* by the Energy Information Administration (EIA), the share of gas production by shale gas will grow from 22.6% in 2010 to 46.5% in 2035. The Rocky Mountain Region will remain the largest national gas producer in the lower 48 states, with production increasing 15% from 2009 through 2035. The Henry Hub price for gas is not expected to surpass \$5.00 per million Btu until 2020, then climb to \$7.07 by 2035—an increase of 2.3% per year. Lower 48 onshore and offshore oil production is expected to increase 0.8% and 0.4%, respectively, through 2035, while prices increase 1.1% per year to \$119.45 per barrel (2009 dollars).

Gas supply and demand expectations are growing. According to the International Energy Agency's *World Energy Outlook 2011*, unconventional gas now comprises 60% of marketed production in the United States. Global demand, according to this report, will drive the share of natural gas in the energy mix from 21% to 25% by 2035, with domestic supply increasing 1.1% per year and demand increasing 0.6% per year.

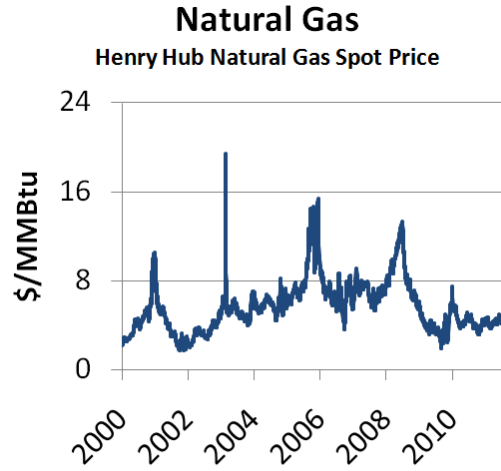
Commodity Prices

On the whole, commodity prices followed an upward trend over the 2000s, climbing to a peak in 2007-2008. Although investor sentiment and business cycles influenced this surge, the central driver was mounting global demand, particularly from emerging economies, coupled with limited resources. For the most part, commodity prices fell in the second half of 2008 as demand slowed during the global recession, and have since rebounded. Some key commodities, however, followed different paths. Gold prices rallied for most of the decade, finishing at more than five times its price in 2000. Natural gas prices, although particularly volatile, maintained a flatter trajectory compared to most commodities; gas ended the decade at less than twice its price in 2000.

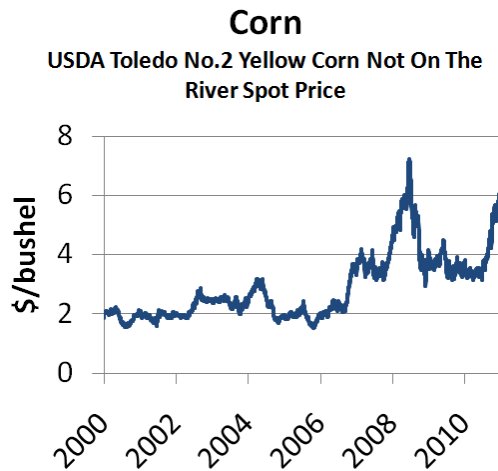
FIGURE 1: COMMODITY PRICES, 2000–2010



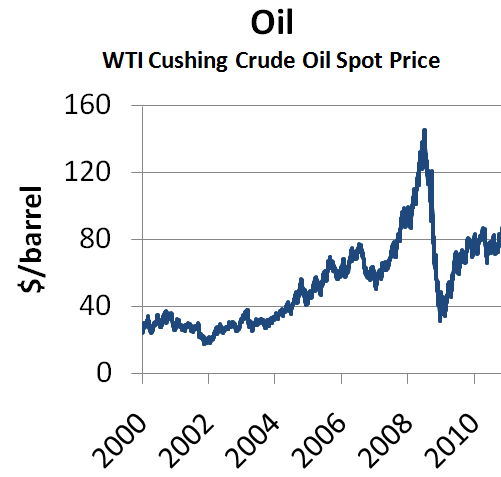
Source: Bloomberg.



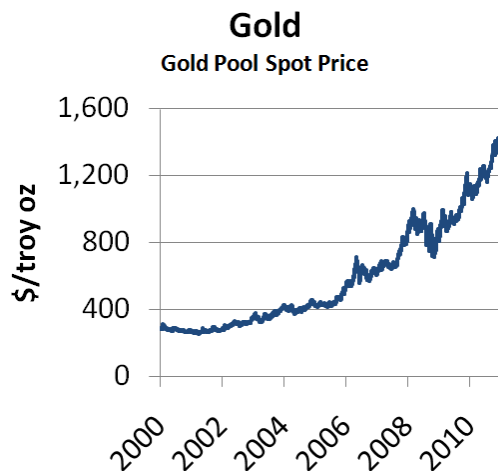
Source: Bloomberg.



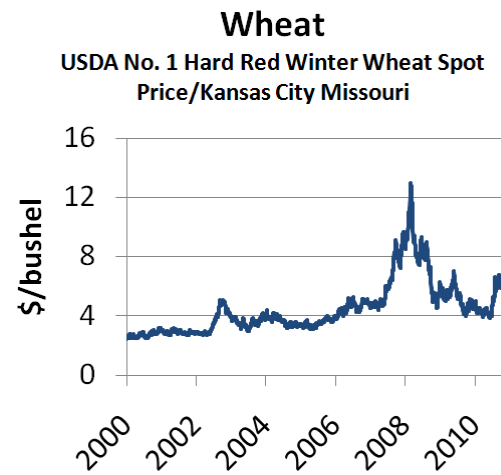
Source: Bloomberg.



Source: Bloomberg.



Source: Bloomberg.



Source: Bloomberg.

Like other commodities, oil and gas prices exhibited volatility from 2000 to 2010. One measure of volatility is the standard deviation of price changes each month. This measure ranks gold the least volatile of the six commodities shown, with a standard deviation of 4.8 percentage points. Natural gas and oil are the two most volatile commodities of the group. Natural gas price monthly changes had a comparatively large standard deviation, 22.2 percentage points, over 2000-2010.

TABLE 1: COMMODITY PRICE VOLATILITY, 2000–2010

Commodity	Average Monthly % Change (Continuous Compounding)	Standard Deviation of Month-to-Month % Change
Coal	0.98%	8.0%
Corn	0.84%	9.5%
Gold	1.23%	4.8%
Natural Gas	0.34%	22.2%
Oil	0.91%	9.8%
Wheat	0.73%	8.2%

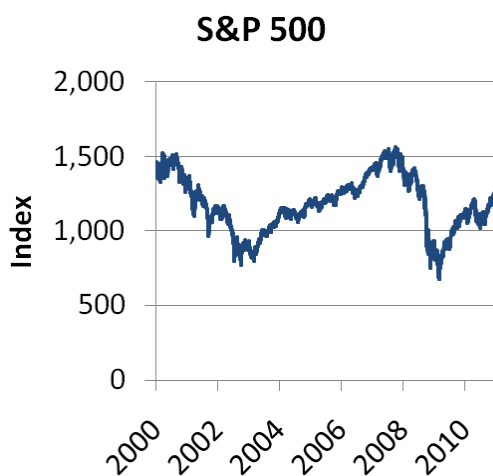
Source: Data from Bloomberg, calculations by the BRD research team.

Other Prices

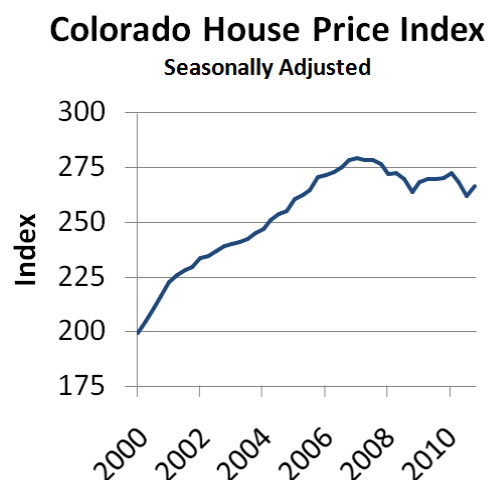
For comparison, the S&P 500's monthly price changes had a standard deviation of 4.8 percentage points over the same period (Figure 2).

Over 2000-2010, home prices in Colorado increased at a compound annual rate of 8.4%. Prices climbed for the first seven years, to a peak in early 2007. For the most part, prices followed a downward trend for the next 18 months. Despite some gains, house prices slumped to 2005 levels in the third quarter of 2010.

FIGURE 2: INDICES, 2000–2010



Source: Bloomberg.

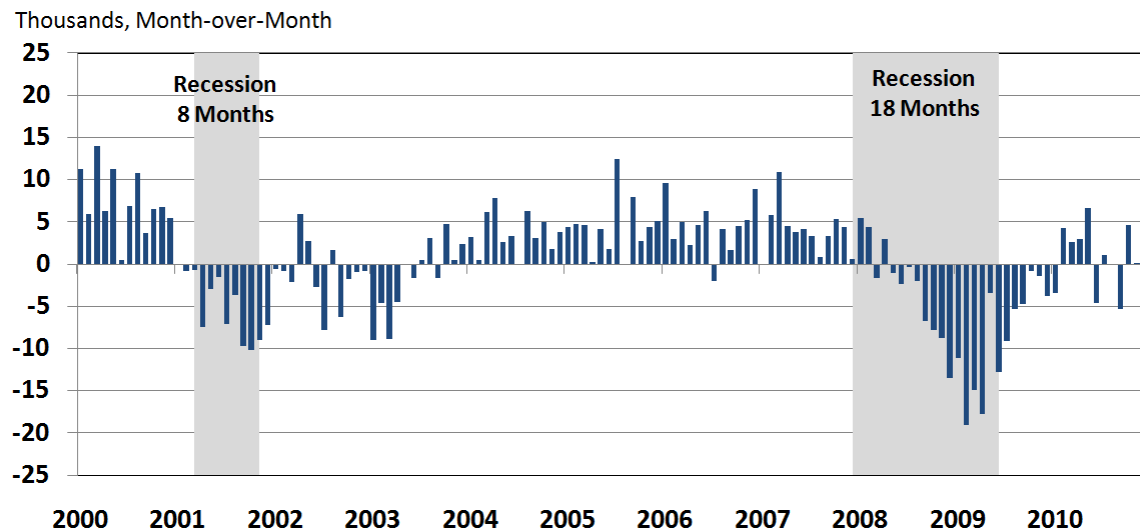


Source: Federal Housing Finance Agency.

Colorado Employment

To some extent, employment changes in Colorado mirrored those of the United States as a whole. The Colorado economy shed some 151,100 jobs between May 2008 and January 2010, recovering 10,900 jobs by year-end 2010. From 2000 to 2010, employment rose by 48,900 jobs, seasonally adjusted. During the same period, Colorado's population grew by 730,000.

FIGURE 3: COLORADO EMPLOYMENT SITUATION, 2000–2011

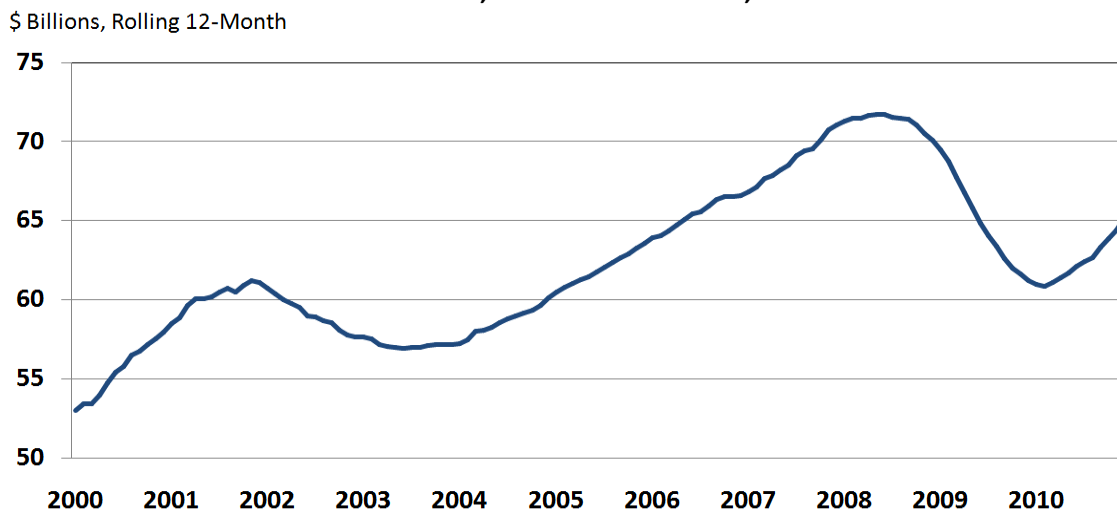


Sources: Bureau of Labor Statistics, Current Employment Statistics SA; National Bureau of Economic Research.

Colorado Retail Sales

Retail sales in Colorado ticked steadily upward for much of the decade from 2000 to 2010. After peaking in late 2007, retail trade sales collapsed in response to the recession. Retail sales have rebounded from their lows, but have yet to return to 2007 levels.

FIGURE 4: COLORADO TAXABLE RETAIL SALES, ROLLING 12-MONTH, 2000–2010



Source: Colorado Department of Revenue.

OIL AND GAS INDUSTRY ECONOMIC IMPACT

The oil and gas industry is a compilation of distinct activities with interrelated, cogent functions that contributed \$31.9 billion to Colorado's economy in 2010 through direct and indirect activities. Mapping the industry illustrates the integrated supply chain within the state of Colorado, including oil and gas drilling, extraction, support activities, transportation, refining, and sales. Much of the oil, gas, and CO₂ is sold outside the state, making the industry an important primary employer that brings in outside investment that benefits Colorado employees, industry, and public goods (specifically schools).

Weighted production sales values per unit indicate Colorado oil and gas prices increased 25.1% from 2009 to 2010, but were still down 35.6% from record prices reached in 2008. Volatility plagues these energy prices, with the standard deviation 36.3% from 2000 through 2010. Price volatility ripples through drilling, production, employment, and public revenues.

**TABLE 2: OIL AND GAS TOTAL ECONOMIC IMPACT
(DIRECT, INDIRECT, INDUCED), 2010**

Source	Employment	Wages (Millions)	Value Added (Millions)	Output (Millions)
Drilling	9,237	\$584.5	\$1,498.8	\$3,334.5
Extraction	57,757	\$4,088.8	\$8,851.1	\$17,344.8
Petroleum Refineries	9,692	\$610.4	\$1,911.3	\$7,503.7
Transportation	3,493	\$249.1	\$383.3	\$895.4
Gasoline Stations	16,617	\$412.8	\$778.7	\$1,161.9
All Other	10,770	\$618.9	\$1,001.8	\$1,679.7
Total	107,566	\$6,564.4	\$14,425.0	\$31,920.0

Prices and Production

Oil and gas production in the state totaled nearly \$9.2 billion in 2010, with natural gas accounting for nearly 74% of sales-based value, oil accounting for 24%, and carbon dioxide, 2% (Table 3). Oil and gas production is primarily sourced from private lands. Examining oil production and value, more than 71% of value of production occurs on private land, with 22% on federal land and the remainder on state land (Table 4).

TABLE 3: VALUE OF OIL AND GAS PRODUCTION BY RESOURCE, 2010

Commodity	Value (Millions)	Percentage
Gas	\$6,771	73.7%
Oil	2,220	24.1%
CO ₂	203	2.2%
Total	\$9,194	100.0%

Source: Colorado Geological Survey, Colorado Oil and Gas Conservation Commission.

TABLE 4: PRODUCTION AND REVENUE BY OWNERSHIP, 2010 (IN MILLIONS)

Oil and Gas	Federal ^a	State	Private	Total ^b
Value of Production	\$2,016.4	\$638.5	\$6,538.8	\$9,193.7
Leases/Bonuses	\$6.7	\$16.5	\$57.1	\$80.3
Royalties	\$214.5	\$27.5	\$596.0	\$838.0
Share of Total Value	21.9%	6.9%	71.1%	100.0%

^aLeases/Bonuses and royalties represent total federal collections.

^bEstimated.

Sources: Office of Natural Resources Revenue, Colorado Geological Survey, Colorado Department of Local Affairs, Colorado Oil and Gas Conservation Commission.

The top five oil and gas resource-rich counties in 2010 were Garfield, Weld, La Plata, Rio Blanco, and Las Animas (Table 5). Colorado is one of the larger oil- and gas-producing states in the nation by several measures. At the end of 2010, the state had 43,354 active wells.⁴ According to the Independent Petroleum Association of America, Colorado ranked 7th in both natural gas production and number of natural gas wells drilled in 2010. Also, it had the 12th-highest crude oil production, and in terms of number of crude oil wells drilled, it placed 18th.⁵

TABLE 5: TOP FIVE OIL AND GAS COUNTIES BY SALES VALUE OF PRODUCTION (IN MILLIONS)

County	Gas	CO2 ^a	Oil	Total
Garfield	\$2,699.9	\$0	\$147.8	\$2,847.7
Weld	\$952.0	\$0	\$1,426.9	\$2,378.9
La Plata	\$1,703.7	\$0	\$2.4	\$1,706.1
Rio Blanco	\$393.2	\$0	\$316.7	\$709.9
Las Animas	\$451.7	\$0	\$0	\$451.7
State Total	\$6,771.3	\$202.7	\$2,219.7	\$9,193.7

^a CO2 occurs in other Colorado counties.

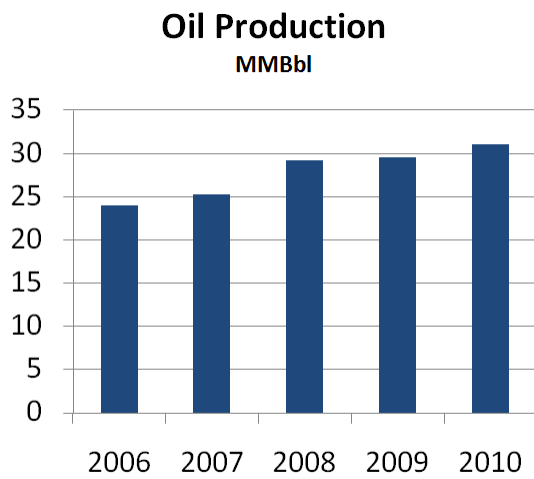
Source: Colorado Geological Survey.

Production value in Colorado has been rather volatile over the past five years; much of the volatility is due to price swings. Oil sales grew from 2005 to 2010, with sales totaling 31 million barrels in 2010. The value of sales was much more volatile, dipping 39% in 2009, then growing nearly 41% in 2010. Gas sales and value of production followed a similar trend over the past five years; in 2010, sales reached 1,564 billion cubic feet. CO2 sales fell in 2010, to 265 billion cubic feet from 408 billion cubic feet. In sum, 2010 production value in Colorado was nearly \$9.2 billion.

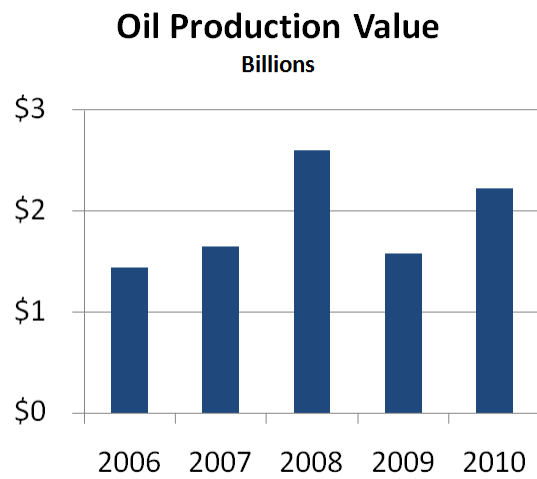
⁴ Colorado Oil and Gas Conservation Commission, Staff Report, http://cogcc.state.co.us/Staff_Reports/2011/2011_08_SR.pdf, retrieved August 26, 2011. See Appendix 5 for the Colorado Department of Local Affairs primary and secondary well counts.

⁵ 2009-2010 IPAA Oil & Gas Producing Industry in Your State, <http://www.ipaa.org/reports/docs/2009-2010IPAAOPI.pdf>, retrieved August 31, 2011.

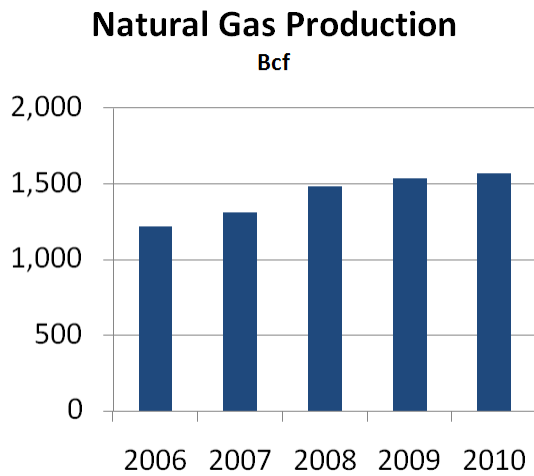
FIGURE 5: COLORADO OIL AND GAS PRODUCTION AND VALUE, 2006–2010



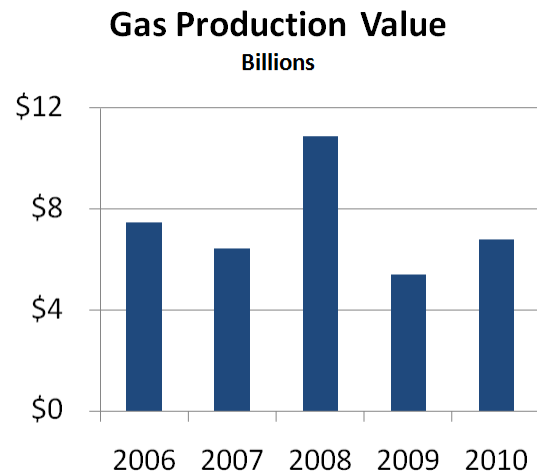
Source: Colorado Geological Survey.



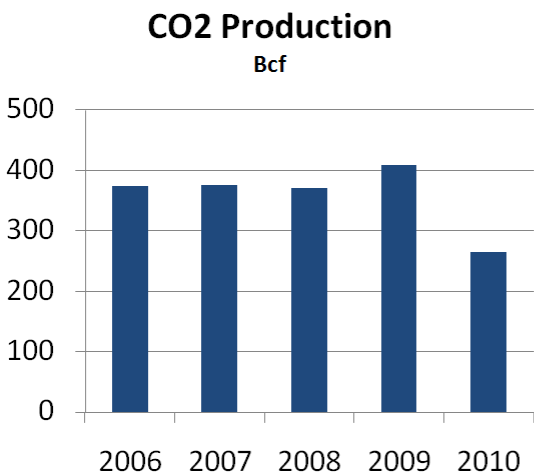
Source: Colorado Geological Survey.



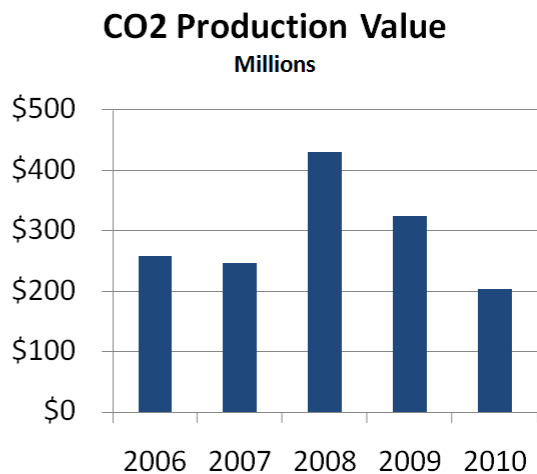
Source: Colorado Geological Survey.



Source: Colorado Geological Survey.



Source: Colorado Geological Survey.



Source: Colorado Geological Survey.

TABLE 6: COLORADO OIL AND GAS PRODUCTION AND VALUE BY YEAR

Oil	2006	2007	2008	2009	2010
Oil (MMBBL)	24.0	25.2	29.2	29.5	31.0
Sales Change	4.80%	4.90%	15.90%	1.00%	5.10%
Value (Millions)	\$1,437.2	\$1,650.5	\$2,597.6	\$1,578.3	\$2,219.7
Value Change	16.2%	14.8%	57.4%	-39.2%	40.6%
Natural Gas					
Natural Gas (Bcf)	1,218.00	1,307.90	1,482.10	1,534.00	1,564.30
Sales Change	8.80%	7.40%	13.30%	3.50%	2.00%
Value (Millions)	\$7,468.70	\$6,419.50	\$10,873.70	\$5,393.40	\$6,771.30
Value Change	-10.9%	-14.0%	69.4%	-50.4%	25.5%
CO2					
CO2 (Bcf)	373	375	371	408	265
Sales Change	3.1%	0.6%	-0.9%	9.8%	-35.0%
Value (Millions)	\$258.0	\$245.9	\$429.5	\$324.1	\$202.7
Value Change	28.4%	-4.7%	74.7%	-24.5%	-37.5%

Source: Colorado Geological Survey.

Unit prices for oil, gas, and CO2 were highly volatile from 2006 through 2010 (Table 7). The national gas price is reflected in the Henry Hub Index, a natural gas price benchmark. The index's daily prices reflect natural gas prices for next-day delivery at the Henry Hub. The average annual prices for this index were calculated by taking the arithmetic averages of the Henry Hub Index's daily closing spot prices over the year.

TABLE 7: OIL AND GAS PRICES 2006–2010

Commodity Indices	2006	2007	2008	2009	2010
Henry Hub Average Price, Calendar Year \$/MMBtu	\$6.73	\$6.97	\$8.89	\$3.94	\$4.37
Colorado Gas Prices Weighted Average Price \$/MMBtu, Fiscal Year	\$7.21	\$5.40	\$4.04	NA	NA
Colorado Gas Prices Weighted Average Price \$/MMBtu, Calendar Year	\$5.76	\$4.85	NA	NA	NA
Colorado Oil Price Composite Index \$/Bbl, Fiscal Year	\$56.83	\$89.33	\$60.20	\$66.56	\$82.19
Colorado Oil Price Composite Index \$/Bbl, Calendar Year	\$60.32	\$65.48	\$90.03	\$53.62	\$71.32
CO2 \$/Mcf	\$0.89	\$0.90	\$1.25	\$1.46	\$1.08
Condensates \$/Bbl	\$59.90	\$57.71	\$90.15	\$47.68	\$68.35

Sources: Bloomberg; Colorado Oil and Gas Conservation Commission; Division of Property Taxation, Colorado Department of Local Affairs.

Colorado prices differ from national index prices, largely because of transportation costs. The Colorado Oil and Gas Conservation Commission (COGCC) computes and tracks composite indices for oil and gas prices in Colorado. The Colorado Oil Price Composite Index is COGCC's weighted average of oil prices in each quadrant of the state; the price for oil produced in the northwest receives a 35% weight; the price for southwest production, 5%; the price for northeast production, 40%; and the price for southeast production, 20%. The Colorado Gas Price Index, reported by COGCC through November 2007, weighted three prices of natural gas produced in Colorado: that for gas supplying to the Northwest Pipeline System (20% weight),

the price for gas supplying the El Paso Natural Gas pipeline (50% weight), and the price for gas in the Colorado Interstate Basin in the U.S. Rocky Mountains.

The average annual prices of CO2 and condensates were calculated by dividing Colorado production value of each by their corresponding production. Oil and gas prices peaked and then fell sharply in 2008. Unlike the others listed, CO2 average annual prices reached a high in 2009; the price has since slumped from \$1.46 to \$1.08 per thousand cubic feet.

The highlighted counties accounted for nearly 96% of the value of oil and gas production value in Colorado in 2010. Garfield and Weld counties had the highest production value of all the Colorado counties, accounting for nearly 57% of the total (Table 8). See Appendix 2 for all counties.

TABLE 8: OIL AND GAS VALUE BY COUNTY (SALES BASE), 2010 (IN MILLIONS)

County	Gas	CO2	Oil	Total	Percent	Cumulative Percent
Garfield	\$2,700	\$0	\$148	\$2,848	31.0%	31.0%
Weld	\$952	\$0	\$1,427	\$2,379	25.9%	56.8%
La Plata	\$1,704	\$0	\$2	\$1,706	18.6%	75.4%
Rio Blanco	\$393	\$0	\$317	\$710	7.7%	83.1%
Las Animas	\$452	\$0	\$0	\$452	4.9%	88.0%
Montezuma	\$2	\$169	\$10	\$181	2.0%	90.0%
Yuma	\$167	\$0	\$0	\$167	1.8%	91.8%
Mesa	\$157	\$0	\$6	\$163	1.8%	93.6%
Cheyenne	\$6	\$0	\$100	\$106	1.2%	94.7%
Moffat	\$81	\$0	\$19	\$100	1.1%	95.8%

Another gauge of production activity in Colorado is the number of approved drilling permits and recompletion permits. In 2010, the state approved 5,996 drilling permits (Table 9). This permit activity was 16% higher compared to the 5,159 approved drilling permits in 2009, but 25% lower than the peak of 8,029 approved in 2008. Permit activity was highest in Weld County, followed closely by Garfield County.

TABLE 9: APPROVED DRILLING AND RECOMPLETION PERMITS

Year	Approved Drilling Permits	Percent Change	Approved Recompletion Permits	Percent Change
2006	5,906	35.1%	315	50.7%
2007	6,375	7.9%	214	-32.1%
2008	8,029	25.9%	287	34.1%
2009	5,159	-35.7%	334	16.4%
2010	5,996	16.2%	515	54.2%

Source: Colorado Oil and Gas Conservation Commission, Staff Report.

By resource, the top five producing natural gas counties were Garfield, La Plata, Weld, Las Animas, and Rio Blanco, which accounted for nearly 92% of sales value in 2010 (Table 10). Similarly, more than 91% of the

2010 value of oil was concentrated to five counties: Weld, Rio Blanco, Garfield, Cheyenne, and Washington. Carbon dioxide production was recorded in only three counties in 2010: Montezuma, Huerfano, and Jackson.

TABLE 10: TOP FIVE COUNTIES BY SALES VALUE OF PRODUCTION BY COMMODITY (IN MILLIONS)

County	Gas	County	CO2	County	Oil
Garfield	\$2,699.9	Montezuma	\$169.4	Weld	\$1,426.9
La Plata	\$1,703.7	Huerfano	\$32.6	Rio Blanco	\$316.7
Weld	\$952.0	Jackson	\$0.7	Garfield	\$147.8
Las Animas	\$451.7	Adams	\$0	Cheyenne	\$99.7
Rio Blanco	\$393.2	Alamosa	\$0	Washington	\$34.8
State Total	\$6,771.3	State Total	\$202.7	State Total	\$2,219.7

Source: Colorado Geological Survey.

Output

The entire oil and gas supply chain output totaled \$31.9 billion in 2010, with \$20.7 billion for core activities (drilling, extraction, and support) and \$11.2 billion related to noncore activities (pipeline, refineries, gasoline stations, and equipment manufacturers). Output is the total value of goods and services produced in an economy, including intermediate goods and services. Output calculations are based on a number of known variables, including production, value of production, employment, wages, severance taxes, property taxes, royalties, and leases.

TABLE 11: COLORADO OIL AND GAS, OUTPUT SUMMARY, 2010 (IN MILLIONS)

Source	Direct	Indirect	Induced	Total
Drilling	\$2,182.3	\$779.5	\$372.7	\$3,334.5
Extraction	\$11,186.5	\$3,265.5	\$2,892.8	\$17,344.8
Petroleum Refineries	\$5,854.8	\$1,260.1	\$388.8	\$7,503.7
Transportation	\$574.8	\$161.8	\$158.9	\$895.4
Gasoline Stations	\$765.7	\$132.8	\$263.4	\$1,161.9
All Other	\$984.1	\$300.7	\$394.8	\$1,679.7
Total	\$21,548.3	\$5,900.3	\$4,471.4	\$31,920.0

The impact of direct core activities resulted in \$13.4 billion in economic activity. Of this, \$11.2 billion is from extraction and support activities, and \$2.2 billion is from drilling activities.

Value Added

The entire oil and gas supply chain value added totaled \$14.4 billion in 2010, with \$10.3 billion for core activities (drilling, extraction, and support) and \$4.1 billion related to noncore activities (pipeline, refineries, gasoline stations, and equipment manufacturers). Value added is gross output net of intermediate input costs.

TABLE 12: COLORADO OIL AND GAS, VALUE ADDED SUMMARY, 2010 (IN MILLIONS)

Source	Direct	Indirect	Induced	Total
Drilling	\$818.8	\$450.3	\$229.6	\$1,498.8
Extraction and Support Activities	\$5,026.1	\$2,042.9	\$1,782.1	\$8,851.1
Petroleum Refineries	\$951.6	\$720.1	\$239.6	\$1,911.3
Transportation	\$187.2	\$98.2	\$97.9	\$383.3
Gasoline Stations	\$532.7	\$83.8	\$162.2	\$778.7
All Other	\$582.8	\$175.8	\$243.2	\$1,001.8
Total	\$8,099.3	\$3,571.1	\$2,754.7	\$14,425.0

The impact of direct core activities resulted in \$5.8 billion in economic activity. Of this, \$5 billion is from extraction and support activities, \$0.8 billion from drilling activities.

Employment

The oil and gas industry, in its most inclusive definition, accounted for 43,836 direct jobs in 2010, including drilling, extraction, pipeline, equipment manufacturing, and gasoline station workers. Most of these workers (85%) were employees of firms, while others (15%) were considered nonemployers (i.e., self-employed). Total employment (direct, indirect, and induced) was estimated at 107,566 in 2010.

TABLE 13: COLORADO OIL AND GAS, EMPLOYMENT SUMMARY, 2010

Source	Direct	Indirect	Induced	Total
Drilling	2,259	4,100	2,878	9,237
Extraction and Support Activities	20,135	15,287	22,335	57,757
Petroleum Refineries	631	6,057	3,005	9,692
Transportation	1,153	1,113	1,226	3,493
Gasoline Stations	13,745	840	2,033	16,617
All Other	5,913	1,809	3,048	10,770
Total	43,836	29,205	34,524	107,566

Drilling, extraction, and support activities accounted for 22,394 jobs in 2010. Downstream employment in related activities—pipeline, equipment manufacturing, and gasoline stations—totaled 21,441 jobs in 2010.

TABLE 14: COLORADO EMPLOYMENT

Employment	2006	2007	2008	2009	2010
Drilling, Extraction, and Support Activities	17,484	22,455	25,907	21,619	22,394
Pipeline, Refining, Equipment Manufacturing, Fueling	22,605	22,919	23,923	22,402	21,440
Total	40,089	45,374	49,829	44,021	43,836
All Industries	2,647,167	2,718,647	2,725,528	2,608,566	2,569,196

Sources: Bureau of Labor Statistics, Quarterly Census of Employment and Wages; U.S. Census Bureau.

Total employment was calculated as the sum of employees and nonemployers (considered self-employed) (Table 15). Publicly available employment and nonemployer data were used to estimate nonemployer detail that is not disclosed. Employment figures were collected and estimated for core oil and gas activities: extraction, drilling, and support activities. To reflect the oil and gas industry's reach more comprehensively, employment numbers were also collected and estimated for related areas in the broad supply chain. These related employment figures range from jobs in petroleum refineries to jobs at gasoline stations. (See Appendix 6 for detailed oil and gas employment and wage data.)

Core oil and gas jobs and related jobs made up about 1.7% of Colorado's total employment in 2010. The number of jobs peaked in 2008, most notably in core oil and gas employment. In 2010, core employment in oil and gas was an estimated 22,394 jobs; related employment accounted for 21,441 jobs.

TABLE 15: OIL AND GAS EMPLOYMENT

NAICS	Industry	2006	2007	2008	2009	2010
44711	Extraction	7,613	9,872	10,928	10,594	10,821
44719	Drilling Wells	3,118	3,872	4,173	2,133	2,259
45431	Support Activities	6,753	8,711	10,806	8,892	9,314
23712	Oil and gas pipeline, related structures construction	3,913	3,732	4,810	3,696	3,158
32411	Petroleum refineries	488	546	601	636	631
324191	Petroleum lubricating oil and grease mfg.	67	67	59	53	45
32412	Asphalt paving, roofing, and saturated materials mfg.	374	299	297	236	218
333132	Oil and gas field machinery and equipment mfg.	154	178	237	231	233
4247	Petroleum and petro products merchant wholesalers	1,512	1,603	1,686	1,590	1,510
486	Pipeline transportation	1,005	1,022	1,062	1,202	1,153
44711	Gasoline stations with convenience stores	13,014	13,378	13,141	12,811	12,605
44719	Other gasoline stations	1,350	1,349	1,289	1,193	1,140
45431	Fuel dealers	727	744	741	753	749
Total	Total Direct Employees	40,088	45,373	49,830	44,020	43,836
All	Total All Industries	2,647,167	2,718,647	2,725,528	2,608,566	2,569,196

Weld and Mesa counties had the highest oil and gas employment in absolute terms: 5,181 jobs (3,348 core) and 3,809 jobs (2,844 core), respectively (Table 16). On the other hand, 23.4% of Rio Blanco's employment

was in oil and gas, by far the highest among these counties. While Cheyenne County had the lowest employment in oil and gas, 139 jobs (106 core), those jobs represented 15.2% of total employment for the county. Of the counties studied, La Plata County had the lowest concentration of oil and gas jobs, with 5% of total employment in oil and gas.

TABLE 16: EMPLOYMENT BY COUNTY

Employment	Cheyenne	Garfield	La Plata	Las Animas	Mesa	Rio Blanco	Weld	Yuma
Total Oil and Gas	139	2,863	1,419	533	3,809	889	5,181	459
All County Emp.	916	28,120	28,636	6,366	69,797	3,803	95,769	4,640
Oil and Gas Percent	15.2%	10.2%	5.0%	8.4%	5.5%	23.4%	5.4%	9.9%

Note: Total oil and gas includes drilling, extraction, support activities, pipeline, refining, oil and gas equipment manufacturing, and gasoline stations. Sources: Bureau of Labor Statistics, Quarterly Census of Employment and Average Wages; U.S. Census Bureau, <http://www.census.gov/econ/nonemployer/index.html>, retrieved July 29, 2011.

Wages

While the oil and gas industry is extremely capital intensive, resulting in high output per worker, the industry pays nearly \$3.2 billion to workers across the state, or 2.6% of total Colorado salary and wages (Table 17). At \$72,373, average wages in 2010 were 51% higher for workers in the oil and gas industry compared to all industries in the state (Table 19). Additionally, while the state has been gripped by recession, this industry is one of a few that has experienced upward employment cost pressures, with average wages increasing over 2009.

Much like employment numbers, wage data were collected and estimated for employees and the self-employed in core oil and gas industries and related industries. Wages paid to core oil and gas employees totaled \$2.31 billion in 2010. Core wages were highest, at \$2.70 billion, in 2008, corresponding with the employment peak. Including related industries, 2010 oil and gas activities accounted for \$3.17 billion in wages in Colorado, or 3% of total wages in the state.

TABLE 17: OIL AND GAS TOTAL WAGES (IN THOUSANDS)

Wages	2006	2007	2008	2009	2010
Total Oil and Gas	\$2,431,320	\$3,007,526	\$3,732,117	\$2,847,926	\$3,172,505
All Industries in Colorado	\$116,655,341	\$124,101,669	\$127,214,614	\$119,668,274	\$122,897,621

Sources: Bureau of Labor Statistics, Quarterly Census of Employment and Wages; U.S. Census Bureau.

TABLE 18: OIL AND GAS, WAGE SUMMARY, 2010 (IN THOUSANDS)

Source	Direct	Indirect	Induced	Total
Drilling	\$180.0	\$283.5	\$121.0	\$584.5
Extraction	\$2,127.2	\$1,022.2	\$939.3	\$4,088.8
Petroleum Refineries	\$66.3	\$417.9	\$126.2	\$610.4
Transportation	\$136.6	\$60.9	\$51.6	\$249.1
Gasoline Stations	\$283.4	\$43.8	\$85.5	\$412.8
All Other	\$378.9	\$111.7	\$128.2	\$618.9
Total	\$3,172.5	\$1,940.0	\$1,451.9	\$6,564.4

The percent of *wages* from oil and gas activities consistently exceeds the percent of *employment* from oil and gas activities because oil and gas jobs tend to pay more than the average job (Table 19). Average wages were calculated by dividing the total wages of employees and the receipts of self-employed by the number of employees and nonemployers. The average core oil and gas job in Colorado earned around twice as much as the average Colorado job over the past five years. In 2010, the average core oil and gas wage was \$103,029, which is 115.4% higher than Colorado's average wage that year (\$47,835). Particularly lucrative areas include extraction, petroleum refineries, and pipeline transportation. Gasoline station and fuel dealer wages were the only oil and gas wages that were lower statewide than the average Colorado wage. Including related jobs, oil and gas activities recorded an average wage of \$72,373 in 2010, which is 51.3% higher than the average wage in Colorado.

TABLE 19: OIL AND GAS AVERAGE WAGES

Average Wages	2006	2007	2008	2009	2010
Core	\$89,115	\$92,748	\$104,037	\$90,604	\$103,029
Noncore	\$38,631	\$40,354	\$43,341	\$39,692	\$40,354
Total	\$60,649	\$66,283	\$74,898	\$64,695	\$72,373
All Industries in Colorado	\$44,068	\$45,648	\$46,675	\$45,875	\$47,835

Sources: Bureau of Labor Statistics, Quarterly Census of Employment and Wages; U.S. Census Bureau.

Wages by county tell a story consistent with that of employment. Weld and Mesa counties have the highest oil and gas wages in absolute terms: \$336 million (\$231 million core) and \$242 million (\$202 million core), respectively (Table 20). However, these counties have the lowest concentrations of wages from oil and gas jobs. Some 8.4% of Weld County wages and 9.1% of Mesa County wages are from oil and gas jobs. In contrast, 36.9% of all wages paid in Rio Blanco County are from oil and gas jobs.

TABLE 20: OIL AND GAS TOTAL WAGES BY COUNTY, 2010 (IN THOUSANDS)

Wages	Cheyenne	Garfield	La Plata	Las Animas	Mesa	Rio Blanco	Weld	Yuma
Core	\$5,440	\$160,719	\$73,020	\$17,155	\$201,890	\$53,323	\$231,330	\$18,141
Noncore	\$829	\$50,010	\$52,028	\$9,265	\$40,410	\$15,375	\$84,699	\$6,364
Total	\$6,269	\$210,729	\$125,048	\$26,420	\$242,300	\$68,698	\$316,029	\$24,505
All County Industries	\$30,360	\$1,216,729	\$1,170,813	\$200,731	\$2,649,234	\$186,081	\$3,744,009	\$148,418
Oil and Gas Percent	20.6%	17.3%	10.7%	13.2%	9.1%	36.9%	8.4%	16.5%

Sources: Bureau of Labor Statistics, Quarterly Census of Employment and Average Wages; U.S. Census Bureau, <http://www.census.gov/econ/nonemployer/index.html>, retrieved July 29, 2011.

Among the highlighted counties, La Plata County had the highest average wages from oil and gas activities. In La Plata County, the average wage from oil and gas jobs was \$88,140 (\$109,129 core), which was 115.6% (166.9% core) more than the average wage for the county (Table 25). Cheyenne County oil and gas employees earned wages with the lowest premium over the average county wage, 36.2% more, partly because the only related activities jobs in Cheyenne County were in gasoline stations and fuel dealers.

TABLE 21: OIL AND GAS AVERAGE WAGES BY COUNTY, 2010

Average Wages	Cheyenne	Garfield	La Plata	Las Animas	Mesa	Rio Blanco	Weld	Yuma
Core	\$51,543	\$77,749	\$109,129	\$63,468	\$70,978	\$74,575	\$69,104	\$60,835
Noncore	\$24,940	\$62,802	\$69,406	\$35,164	\$41,893	\$88,465	\$46,205	\$39,585
Total	\$45,170	\$73,592	\$88,140	\$49,497	\$63,612	\$77,291	\$61,002	\$53,392
All County Industries	\$33,157	\$43,269	\$40,886	\$31,533	\$37,956	\$48,935	\$39,094	\$31,984
Oil and Gas Percent	36.2%	70.1%	115.6%	57.0%	67.6%	57.9%	56.0%	66.9%

Sources: Bureau of Labor Statistics, Quarterly Census of Employment and Average Wages; U.S. Census Bureau, <http://www.census.gov/econ/nonemployer/index.html>, retrieved July 29, 2011.

OIL AND GAS INDUSTRY PUBLIC REVENUE

In 2010, the oil and gas industry contributed more than \$1.1 billion in revenues to state and local governments, schools districts, and special districts (Table 22). Sources of public revenue include severance, property taxes (including ad valorem), royalties, leases, bonuses, income taxes, and sales taxes.

TABLE 22: OIL AND GAS CONTRIBUTIONS TO COLORADO PUBLIC REVENUES BY SOURCE (IN MILLIONS)

Severance	Property	Leases	Royalties	Personal Income	Corporate Income	Sales Taxes	COGCC Tax	Other ^a	Total
\$63.7	\$360.0	\$24.7	\$123.8	\$68.3	\$20.9	\$303.1	\$6.3	\$165.2	\$1,136.1

^aOther includes motor vehicle licensing, dividends, recreation fees, etc.

Property Taxes

Total property taxes related to land, improvements, and personal property were \$360.1 million in 2010 (Table 23). Property taxes depend on the property's taxable assessment and tax rates. An oil and gas property's taxable assessed value is based on its total actual value (market value) adjusted using assessment ratios. The prior year's primary and secondary production values (Table 24), reported by oil and gas operators, are assessed at 87.5% and 75%, respectively. Equipment, buildings, fixtures, and leasehold improvements are assessed at 29% of actual value, the commercial property assessment ratio. The appropriate tax rates are then applied to the final assessed property value.

Publicly available assessed values and average mill levies were used to estimate property tax revenues from oil and gas activities. Colorado's statewide property tax estimates were calculated using assessed property values and the total average county levy (Table 23).

Annual property tax revenue estimates for the state were calculated using each year's average levy and historic assessed values. These property tax estimates excluded municipal levies to reflect the location of most oil and gas properties. Property tax revenues from oil and gas activities were projected at \$360.1 million in 2010 (Table 23). Assessed property values, and consequently property taxes, peaked in 2009. High 2008 prices that boosted production value likely contributed to this.

TABLE 23: OIL AND GAS ASSESSED PROPERTY, LEVIES, AND TAXES, 2006–2010 (IN MILLIONS)

Assessed Value	2006	2007	2008	2009	2010
Land	\$6,758.9	\$6,406.6	\$6,497.0	\$10,177.7	\$4,665.4
Improvements	\$14.6	\$14.4	\$16.3	\$13.3	\$7.3
Personal	\$556.0	\$802.8	\$1,163.9	\$1,667.5	\$1,576.8
Total Assessed	\$7,329.4	\$7,223.8	\$7,677.1	\$11,858.6	\$6,249.5
<i>Percent of Total</i>	8.32%	7.22%	7.43%	10.25%	5.63%
Average Mill Levies					
County	18.56	18.55	18.32	17.74	18.22
Municipal	7.77	7.57	7.6	7.34	7.39
School	37.46	36.88	36.49	34.47	36.54
Special	2.78	2.73	2.78	2.69	2.85
Total County	73.48	72.88	72.75	69.76	73.22
Property Taxes					
Land	\$397.4	\$372.6	\$374.1	\$558.7	\$268.8
Improvements	\$0.9	\$0.8	\$0.9	\$0.7	\$0.4
Personal	\$32.7	\$46.7	\$67.0	\$91.5	\$90.9
Total Taxes	\$431.0	\$420.1	\$442.1	\$650.9	\$360.1
Colorado Total Property Taxes					
Property Tax Revenue	\$5,474	\$6,199	\$6,362	\$6,815	\$6,794
<i>Percent from Oil and Gas</i>	7.87%	6.78%	6.95%	9.55%	5.30%

Source: Division of Property Taxation, Colorado Department of Local Affairs, 2005-2010 Annual Reports.

TABLE 24: DOLA-REPORTED OIL AND GAS PRODUCTION, 2006–2010

Resource	2006	2007	2008	2009	2010
Oil (Primary) (Bbl)	19,398,622	17,457,655	19,481,263	23,555,544	23,169,312
Oil (Secondary) (Bbl)	20,508,418	6,882,410	7,071,305	6,604,535	6,068,288
Gas (Primary) (Mcf)	1,082,334,650	1,155,090,829	1,326,542,361	1,417,698,106	1,472,780,075
Gas (Secondary) (Mcf)	425,186	263,286	356,897	104,639	123,329
Helium (Mcf)	0	0	0	0	0
Oil Shale (Mcf)	0	0	0	0	0
Natural Gas Liquids and/or Oil and Gas Condensates (Bbl)	1,606,435	6,900,429	22,142,783	28,568,318	45,052,620
CO2 (Mcf)	400,532,929	357,649,836	356,752,872	341,620,702	1,957,251

Source: Division of Property Taxation, Colorado Department of Local Affairs.

The majority of property taxes come from what is classified as land value. Based on the assessed production value for the previous year, land contributed almost three-quarters of total 2010 oil and gas property taxes. The second-largest contributor to oil and gas property taxes, accounting for one-quarter, was personal property. The remainder was from improvements on the land, by far the smallest contributor to property taxes.

County-wide property tax estimates showed a high concentration of oil and gas properties, by assessed values, in the highlighted counties compared to Colorado overall. Garfield and Weld counties contributed relatively large portions of estimated property taxes, \$60.5 million and \$81.4 million, respectively. Of the highlighted counties, Cheyenne and Yuma counties had the least estimated property taxes from oil and gas

in absolute terms. Yet, oil and gas property values had the highest concentration in Cheyenne County; 66.8% of assessed property value in the county was in oil and gas.

TABLE 25: SELECT COUNTY OIL AND GAS ASSESSED PROPERTY VALUES, LEVIES, AND TAXES, 2010 (IN THOUSANDS)

Assessed Value	Cheyenne	Garfield	La Plata	Las Animas	Mesa	Rio Blanco	Weld	Yuma
Land	\$70,809	\$1,345,645	\$689,888	\$143,772	\$65,978	\$298,045	\$1,505,380	\$81,169
Improvements	\$4,398	\$0	\$0	\$0	\$0	\$1,573	\$0	\$83
Personal	\$9,389	\$587,161	\$247,423	\$96,428	\$127,166	\$268,631	\$96,490	\$19,481
Total Assessed	\$84,595	\$1,932,806	\$937,311	\$240,199	\$193,143	\$568,249	\$1,601,871	\$100,733
Percent of Total	66.81%	58.61%	40.09%	53.21%	8.34%	50.26%	34.63%	36.97%
Average Mill Levies								
County	15.16	13.66	8.5	9.36	12.2	9.05	16.8	21.78
Municipal	35.98	4.96	2.74	17.05	8.39	8.13	13.43	24.22
School	17.66	15.52	14.37	15.2	31.67	9.7	30.92	28.12
Special	1.33	2.13	1.77	2.17	1.7	2.93	3.07	2.11
Total County	41.51	44.99	31.63	34.6	57.28	43.22	73.06	68.63
Property Taxes								
Land	\$2,418	\$42,123	\$16,996	\$3,841	\$3,006	\$6,461	\$76,470	\$4,221
Improvements	\$150	\$0	\$0	\$0	\$0	\$34	\$0	\$4
Personal	\$321	\$18,380	\$6,096	\$2,576	\$5,795	\$5,824	\$4,902	\$1,013
Total Taxes	\$2,888	\$60,503	\$23,092	\$6,417	\$8,801	\$12,319	\$81,372	\$5,238
County Total Property Taxes								
Total Revenue	\$5,256	\$153,425	\$74,492	\$15,587	\$132,570	\$48,765	\$343,476	\$18,840
Percent Oil and Gas	54.96%	39.43%	31.00%	41.17%	6.64%	25.26%	23.69%	27.80%

Source: Division of Property Taxation, Colorado Department of Local Affairs, 2005-2010 Annual Reports.

Public Leases and Royalties

Oil and gas exploration and development on public lands provide additional public revenue. Federal leases generated revenue disbursed back to Colorado of \$8.2 million in 2010 (Table 26). Federal lease income includes fixed annual rent payments, generally between \$1.50 and \$2.00 per acre. Additionally, for lands offered by competitive bidding, premiums paid above rent payments are called bonuses. Federal lease revenue disbursements to Colorado in 2010 were down sharply after soaring to \$64.6 million in 2009.

The state of Colorado, too, leases land. The State Land Board auctions off leases to determine the rents oil and gas companies pay for state parcels. The base rate, \$1.50 per acre until changed to \$2.50 per acre in 2011, is collected and classified as rental income. Similar to federal lease bonuses, premiums bid over the base price, classified as bonus revenue, are also lease income. The State of Colorado received almost \$16.5 million in state lease revenue from oil and gas in 2010, by far its highest level over the previous five years (Table 26).

In addition to lease revenue, oil and gas activity on public lands provides royalty revenue. On federal lands, minimum annual royalty payments, much like rents, are required until production begins. When production exceeds minimal levels, royalty payments are based on production volume and negotiated sales prices of the oil and gas produced. Companies are allowed to deduct from royalty value costs associated with transporting and processing the oil and gas. Royalties from oil and gas activities on federal lands disbursed to Colorado totaled almost \$96.3 million in 2010 (Table 26). Federal royalties were highest in 2008, when disbursements reached \$125.5 million.

When mineral resources are discovered on state land, oil and gas companies pay Colorado monthly royalties based on production volume and sales prices. For the state's ownership share, Colorado charges a portion of proceeds from oil and gas sales; the full royalty rate was 12.5% until the State Land Board authorized a change to 16.67% in June 2010. State royalties totaled \$27.5 million in 2010 (Table 26). State royalties were highest in 2006, when they totaled almost \$34.2 million.

TABLE 26: REVENUE FROM ACTIVITIES ON PUBLIC LAND, FY2006–FY2010 (IN THOUSANDS)

Source of Revenue	2006	2007	2008	2009	2010
Federal Leases Disbursements	\$18,600.3	\$14,127.8	\$19,223.8	\$64,557.7	\$8,205.7
State Leases	\$6,045.2	\$5,068.7	\$8,167.3	\$5,447.3	\$16,476.7
Estimated Total Public Leases	\$24,646	\$19,196	\$27,391	\$70,005	\$24,682
Federal Royalty Disbursements	\$103,485.2	\$84,041.9	\$125,498.7	\$105,621.6	\$96,252.0
State Royalties	\$34,184.3	\$27,665.3	\$32,568.0	\$31,879.1	\$27,509.2
Estimated Total Public Royalties	\$137,669	\$111,707	\$158,067	\$137,501	\$123,761

Sources: Office of Natural Resources Revenue; State Land Board, 2010 Annual Income and Inventory Report.

Severance Taxes

Severance taxes are those that states charge for the removal of nonrenewable natural resources. In Colorado, oil and gas wells with production exceeding stripper-well levels incur severance taxes. The marginal rate for this tax ranges from 2% to 5%, depending on gross income from production (Table 27). Severance tax returns are complicated by the ad valorem property tax credit. When the credit is available, producers deduct from their severance tax bills 87.5% of ad valorem property taxes paid on production, net of ad valorem property taxes on stripper wells.

TABLE 27: SEVERANCE TAX RATE SCHEDULE

Total Gross Income Range	Corresponding Severance Tax
Under \$25,000	2% of gross income
\$25,000 - \$99,999	\$500 plus 3% of the excess over \$24,999
\$100,000 - \$299,999	\$2,750 plus 4% of the excess over \$99,999
\$300,000 and over	\$10,750 plus 5% of the excess over \$299,999

Source: Colorado Department of Revenue, Form DR 0021D.

In 2010, severance taxes in Colorado totaled \$63.7 million (Table 28). This was a significant drop from 2009 levels, when severance taxes amounted to \$272.7 million.

TABLE 28: SEVERANCE TAXES, 2006–2010 (IN THOUSANDS)

Source of Revenue	2006	2007	2008	2009	2010
Severance (Fiscal Year)	\$196,669	\$126,457	\$139,552	\$272,653	\$63,705

Source: Colorado Department of Revenue.

Revenue from the Local Government Severance Tax Fund and the Federal Mineral Lease Fund is annually paid out to Colorado communities. In 2010, oil and gas severance and lease distributions made up 80% of all such distributions in Colorado (Table 29).

TABLE 29: SEVERANCE AND MINERAL LEASE DISTRIBUTIONS, 2009 AND 2010 (IN MILLIONS)

Source of Revenue	2009	2010
Oil/Gas Distribution Amount	\$41.0	\$9.6
Total Distributions in Colorado	\$44.5	\$11.9
Oil/Gas Percent of Total	92.2%	80.0%

Source: Colorado Department of Local Affairs, Severance Direct Distribution and Federal Mineral Lease Distributions, https://dola.colorado.gov/sdd/sdd_tier1.jsf, retrieved August 19, 2011.

Distributions from state severance tax receipts and federal mineral lease nonbonus payments are allocated based on such factors as permits and employee residence. In 2010, redistribution of oil and gas revenue accounted for the majority of total distributions in Mesa County (Table 30). See Appendix 3 for lease distributions by county.

TABLE 30: SEVERANCE AND MINERAL LEASE DISTRIBUTIONS BY COUNTY, 2010 (IN THOUSANDS)

Commodity	Cheyenne	Garfield	La Plata	Las Animas	Mesa	Rio Blanco	Weld	Yuma
Coal Distr.	0.0	0.8	3.3	0.0	11.8	29.3	0.2	0.0
Metals Distr.	0.0	0.0	0.0	0.0	0.0	0.8	0.2	0.0
Oil and Gas Distr.	20.2	387.1	149.5	262.2	1,252.4	170.5	938.9	108.3
Permits Distr.	4.2	747.3	173.1	50.4	198.0	270.0	512.6	36.4
Mineral Prod Distr.	16.8	696.7	523.8	150.9	40.5	200.8	367.1	51.1
Total Distributions	41.2	1,831.9	849.7	463.6	1,502.7	671.4	1,819.0	196.0

Source: Colorado Department of Local Affairs, Severance Direct Distribution and Federal Mineral Lease Distributions, https://dola.colorado.gov/sdd/sdd_tier1.jsf, retrieved August 19, 2011.

COGCC Taxes

Oil and gas companies pay COGCC a conservation levy every quarter. As of July 2007, the charge is 0.07% of oil, natural gas, and CO₂ production sales, less exemptions. The levy rate is designed to meet the expenses

of the agency. In tandem with production value, COGCC levy revenue peaked in 2008, at \$8.7 million. After dropping to \$4.6 million in 2009, levy revenue rebounded to \$6.3 million in 2010 (Table 31).

TABLE 31: COGCC CONSERVATION LEVY, 2006–2010 (IN THOUSANDS)

Source of Revenue	2006	2007	2008	2009	2010
COGCC Tax	\$4,049.9	\$5,182.7	\$8,734.2	\$4,612.8	\$6,336.1

Source: Colorado Oil and Gas Conservation Commission, <http://cogcc.state.co.us/>.

Income and Sales Taxes

Because average wages for jobs in oil and gas tend to be higher than those of the average job in Colorado, income taxes paid per worker are also higher than average. Although Colorado's state income tax rate is a flat 4.63%, individuals often pay less as a result of deductions (see Appendix 4). Tax rate estimates were calculated by dividing actual taxes paid per person in each income range by the midpoint of each income range. Income taxes paid by industry were calculated by pairing tax rate estimates with average wages in their corresponding income ranges and then applying estimated tax rates to total wages for the industry. (See Appendix 4 for estimate effective tax rates.)

In 2010, income taxes paid by individuals working in oil and gas were estimated at \$68.3 million (Table 32). Core employment generated almost \$52.5 million in income taxes; the largest contributor was extraction.

TABLE 32: INCOME TAXES, OIL AND GAS, 2010

NAICS	Industry (Nonemployers)	Average Wage	Estimated Colorado Effective Tax Rate	Total Wages	Estimated Income Taxes
44711	Extraction	\$133,962	2.69%	\$1,160.3	\$31.18
44719	Drilling wells	\$79,680	2.85%	\$170.7	\$4.87
45431	Support Activities	\$72,754	2.56%	\$642.6	\$16.45
23712	Oil and gas pipeline and related structures construction	\$69,082	2.56%	\$152.5	\$3.90
32411	Petroleum refineries	\$105,034	2.69%	\$64.2	\$1.73
324191	Petroleum lubricating oil and grease mfg.	\$56,314	2.56%	\$2.5	\$0.06
32412	Asphalt paving, roofing, and saturated materials mfg.	\$69,964	2.56%	\$14.7	\$0.38
333132	Oil and gas field machinery and equipment mfg.	\$71,385	2.56%	\$16.1	\$0.41
4247	Petroleum and petroleum products merchant wholesalers	\$61,262	2.56%	\$86.1	\$2.20
486	Pipeline transportation	\$118,446	2.69%	\$103.0	\$2.77
44711	Gasoline stations with convenience stores	\$19,887	1.54%	\$206.5	\$3.18
44719	Other gasoline stations	\$28,759	1.96%	\$27.0	\$0.53
45431	Fuel dealers	\$45,242	2.32%	\$27.9	\$0.65
Total	Total Core and Noncore Wages	\$72,373	2.6%	\$2,674	\$68.30

Sources: Colorado Individual Statistics of Income, Federal AGI and Tax, All Full-Year Resident Returns, 2005 Individual Income Tax Returns; Bureau of Labor Statistics, Quarterly Census of Employment and Average Wages; U.S. Census Bureau, <http://www.census.gov/econ/nonemployer/index.html>, retrieved July 29, 2011.

SUMMARY OF OTHER INDUSTRIES

When examining the economic contributions and public revenues associated with oil and gas, it is instructive to put these values in context by examining contributions made by other industries. These industries have iterative impacts on each other and cannot be assumed to cause economic activity in isolation. This section compared oil and gas (core and noncore) to three industries of varying sizes: manufacturing, retail trade, and gaming. These industries were selected based on similarities to the oil and gas industry: manufacturing imports investment, exports goods, pays above-average wages, and contributes substantially to public revenues; retail trade facilitates the collection of public revenues through taxes on goods sold; and gaming pays additional taxes and operates in rural areas.

Of the industries considered, retail has had the highest employment in Colorado over the past five years, accounting for nearly 272,000 jobs in 2010 (employer and self-employed) (Table 33). Manufacturing accounted for 132,000 jobs in 2010, and gaming had 3,800 jobs. (See Appendix 7 for employment data by industry.)

Manufacturing and retail trade paid wages totaling \$7.8 billion and \$7.7 billion, respectively (Table 33). Gaming paid \$136.1 million in wages in 2010. Average wages from oil and gas jobs were higher than those of any of the other selected industries. The average annual wage in manufacturing, \$59,245 in 2010, exceeded that of Colorado's average job (Table 33). Retail and gaming jobs paid average wages that fell below the state average.

TABLE 33: EMPLOYMENT AND WAGES, OTHER INDUSTRIES, 2006–2010

Industry	Employment	Wages	Average Wages
Manufacturing	131,691	\$7,801,968	\$59,245
Retail Trade	271,847	\$7,741,755	\$28,478
Gaming	3,791	\$136,147	\$35,913
Oil and Gas	43,835	\$3,172,505	\$72,373

Sources: Bureau of Labor Statistics, Quarterly Census of Employment and Wages; U.S. Census Bureau.

To provide a comparison of state and local tax impacts, IMPLAN was used as the primary estimating tool, supplementing taxes in instances where better data are available (e.g., severance taxes). Retail trade was by far the greatest direct contributor to state and local taxes, primarily through sales taxes in the state (Table 34); economically similar to the oil and gas industry facilitating ad valorem taxes on production, the retail trade industry facilitates sales taxes. Manufacturing provided substantial tax impacts, primarily through sales, property, and income taxes, while gaming's largest contributions were derived from gaming and property taxes. This comparison *does not* include royalties and lease payments made by oil and gas to

state and local governments, which contribute an additional \$148.5 million to state and local revenues, because these are not considered taxes—they are similarly paid to private land owners.

TABLE 34: STATE AND LOCAL TAXES RELATED TO DIRECT OPERATIONS, 2010 (IN MILLIONS)

Direct Taxes	Oil and Gas	Retail	Manufacturing	Gaming
Dividends	\$82.2	\$52.1	\$130.4	\$0.5
Social Ins Tax- Employee Contribution	\$1.7	\$5.8	\$7.0	\$0.1
Social Ins Tax- Employer Contribution	\$4.1	\$14.4	\$17.4	\$0.2
Indirect Bus Tax: Sales Tax	\$303.1	\$4,552.0	\$414.7	\$5.8
Indirect Bus Tax: Property Tax	\$465.5	\$1,111.1	\$413.8	\$14.0
Indirect Bus Tax: Motor Vehicle Lic	\$5.6	\$20.4	\$7.6	\$0.1
Indirect Bus Tax: Severance Tax	\$65.3	\$16.6	\$6.2	\$0.1
Indirect Bus Tax: Other Taxes	\$29.5	\$85.2	\$31.7	\$110.8
Indirect Bus Tax: S/L NonTaxes	\$62.2	\$228.6	\$85.1	\$1.2
Corporate Profits Tax	\$20.5	\$13.0	\$32.5	\$0.1
Personal Tax: Income Tax	\$68.3	\$161.1	\$179.8	\$1.8
Personal Tax: NonTaxes (Fines- Fees	\$19.6	\$47.2	\$52.6	\$0.5
Personal Tax: Motor Vehicle License	\$3.2	\$7.7	\$8.6	\$0.1
Personal Tax: Property Taxes	\$1.7	\$4.0	\$4.5	\$0.0
Personal Tax: Other Tax (Fish/Hunt)	\$5.0	\$12.1	\$13.5	\$0.1
Total State and Local Tax	\$1,137.4	\$6,331.3	\$1,405.4	\$135.3

Source: IMPLAN. Oil and gas figures do not include royalties and leases. Highlighted cells refer to instances where figures were extracted directly from publicly available sources (i.e., Colorado Department of Revenue, COGCC).

One way in which the retail industry contributes to public revenue is by enabling the collection of sales taxes. Colorado's state sales tax rate is 2.9%. City, county, and district sales tax rates vary by jurisdiction. According to the Tax Foundation, the average local sales tax rate in Colorado as of January 2011 was 4.08%, bringing the combined average sales tax rate to 6.98%. Based on this rate, retail sales generated almost \$4.6 billion in sales tax revenue in 2010.

TABLE 35: ESTIMATED SALES TAXES, RETAIL, 2006–2010 (IN MILLIONS)

Annual Retail Activity	2006	2007	2008	2009	2010
Taxable Retail Sales	\$66,577	\$71,078	\$70,076	\$61,187	\$65,182
State Net Sales Tax Revenue	\$1,866	\$1,992	\$1,964	\$1,762	\$1,892
Local Sales Tax Revenue	\$2,716	\$2,900	\$2,859	\$2,496	\$2,659
Total Sales Tax Revenue	\$4,582	\$4,892	\$4,823	\$4,259	\$4,552

Sources: Colorado Department of Revenue; The Tax Foundation, <http://www.taxfoundation.org/taxdata/show/23255.html>, retrieved August 30, 2011.

Public revenues generated by the gaming industry also include such sources as gaming taxes and license fees. The Division of Gaming collected \$110.8 million in revenues in FY2010 (Table 35, Appendix 9).

TABLE 36: OTHER PUBLIC REVENUES FROM GAMING, 2009–2010 (IN THOUSANDS)

Source of Revenue	2009	2010
Gaming taxes	\$94,907	\$107,669
License and application fees	\$633	\$635
Background investigations	\$243	\$358
Fines and other	\$13	\$61
Interest income	\$1,203	\$1,100
Net increase in fair value of investments	\$447	\$986
Total revenues	\$97,445	\$110,810

Source: Division of Gaming, Colorado Department of Revenue, retrieved August 30, 2011.

CONCLUSION

This study quantified the economic and fiscal contributions of Colorado’s oil and gas industry in 2010.

Specific attention focused on some of the state’s top oil- and gas-producing counties. To put these numbers into context, the industry’s impact was compared to that of three other important industries in Colorado.

In 2010, the oil and gas industry generated \$31.9 billion output in Colorado’s economy and directly contributed almost \$668 million to public revenue. A major source of economic activity was employment. The broad oil and gas supply chain accounted for some 43,800 jobs, many of which are among Colorado’s more lucrative positions; core jobs in drilling, extraction, and support activities pay wages roughly twice Colorado’s average wage. A major contributor of the public revenue collected from the oil and gas industry was property taxes. Largely due to a high assessment ratio used to value production, property taxes amounted to some \$360 million in 2010.

Further research is needed to capture the full impact of the oil and gas industry in Colorado. For example, the scope of this study required that private leases and royalties be estimated using government rates, while actual rates may be significantly higher. Also, as this report focuses on the impact in 2010, updates in future years would help describe this constantly changing industry.

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APPENDIX 1: FULL LITERATURE REVIEW

Comparison of Oil Tax Burdens in the Ten Largest Oil-Producing States – 2008 (Alberro and Hamm, 2008)

At the request of the Western States Petroleum Association, the LECG Corporation prepared a report in 2008 that compares California's tax burden to that of other oil-producing states. The study uses a single hypothetical oil firm for purposes of comparison, a method that produces a consistent benchmark that captures effects of states' multiple tax strategies, but ignores the responsiveness of tax revenue to fluctuations in oil prices. According to this methodology, the 10 largest oil-producing states, in descending tax burden, are: Wyoming, New Mexico, Louisiana, Colorado, Texas, California, Arkansas, Utah, Kansas, and Oklahoma. The study also analyzed the impact of a proposed 9.9% severance tax on California's tax burden rank. With this tax, the tax burden that California imposes on oil producers like the benchmark firm would be significantly higher than in the other nine states.

Analysis of the Economic Impact Associated with Oil and Gas Activities on State Leases – 2002 (Baumann et al., 2002)

In 2002, the LSU Center for Energy Studies conducted an examination of the impacts associated with drilling and production activities on state leases. The study estimated economic, tax, and revenue impacts using input-output modeling. The analysis indicates drilling and production activities produce \$733 million in direct economic output and an estimated \$249 million in indirect impacts. Oil and gas activity on state leases employs approximately 3,467 people and generates approximately 3,118 indirect jobs. Louisiana state and local governments typically receive approximately \$500 million in annual revenue from state lease operations, including taxes from indirect economic impacts. Although commodity price swings dominate changes in both direct and indirect revenue, the study asserts that policy changes can have substantial effects on government revenue.

The Structure and Economic Impact of Utah's Oil and Gas Exploration and Production Industry – 2007 (Bureau of Economic and Business Research, University of Utah, 2007)

In 2007, the Bureau of Economic and Business Research at the University of Utah released an economic impact study of the oil and gas industry in the Uinta Basin in eastern Utah. A recent rise in production had caused an economic boom in the area. During 2006, the oil and gas exploration and production industry was directly responsible for 19.9% of employment (including indirect and induced, 49.5%) and 34.8% of total wages in the Uinta Basin (including indirect and induced, 60.1%). Property taxes paid on producing oil

and gas wells were \$18.2 million in 2006, 38.7% of all property taxes paid in the Uinta Basin, and federal mineral royalties amounted to \$30.3 million.

Royalty In Kind Program 2009 Report to Congress – 2010 (Bureau of Ocean Energy Management, Regulation and Enforcement, 2010)

Since the Royalty in Kind Program was first piloted in 1998, Minerals Revenue Management has taken royalties on crude oil and natural gas production in kind, rather than via cash payment. The 2009 annual report, submitted fall 2010, describes the performance, benefits, and savings associated with the Royalty in Kind Program. The program provided several economic benefits for the American public, including reducing administrative costs associated with disputes over payment, receiving royalty payments earlier than in-value royalties, and increasing revenue by obtaining higher sales values. During FY 2009 (October 2008 through September 2009), the Royalty in Kind Program generated benefits estimated at \$23 million; depending on various assumptions regarding markets and administrative costs, those estimated benefits range from negative \$21 million to positive \$57 million. As of September 2009, Minerals Revenue Management is phasing out the Royalty in Kind Program.

Using Multipliers to Measure Economic Impacts – 2002 (California Economic Strategy Panel, 2002)

In 2002, the California Economic Strategy Panel released a report that listed multipliers used to estimate the indirect change to the California economy resulting from each change in major industries, based on data from the U.S. Department of Commerce, Bureau of Economic Analysis. Oil and gas extraction final demand generated from changes in output from the industry had multipliers of 1.9062 for output, 0.2844 for household earnings, and 6.4 for employment. Oil and gas extraction direct effects of changes in household earnings had multipliers of 2.6974 for earnings, and 4.4829 for employment. Oil and gas field machinery and equipment final demand generated from changes in output from the industry had multipliers of 2.111 for output, 0.7221 for household earnings, and 17.13 for employment. Oil and gas field machinery and equipment direct effects of changes in household earnings had multipliers of 1.8115 for earnings, and 2.3413 for employment. Employment multipliers are based on 1999 data.

California Oil and Gas Production Industry State Regulatory Delays – 2011 (Consulting Practice of the Los Angeles County Economic Development Corporation, 2011)

In 2011, the Consulting Practice of the Los Angeles County Economic Development Corporation investigated the economic impact of permit delays that postpone investment in California's oil and gas production industry. The study found that these delays hold up an estimated \$1 billion in capital investment in oil and gas field redevelopment for an average of approximately one year. A one-time \$1 billion investment would be expected to produce approximately \$1,040.3 million in economic output, 6,040 jobs, \$425.4 million labor income, and \$49 million in state and local taxes. The study estimated the ongoing annual impact from the incremental increase in production to be \$164.5 million in economic output, 770 jobs, \$59.3 million labor income, and \$ 24.4 million in state and local taxes. Models developed with data and software from the Minnesota IMPLAN Group were used to estimate these direct, indirect, and induced effects.

Louisiana Oil & Gas: A Thriving Industry – 2007 (John and Scott, 2007)

In 2007, the Louisiana Mid-Continent Oil and Gas Association released conclusions based on a study of the economic impact of Louisiana's oil and gas industry. The study estimates the economic impact of the oil and gas industry to be more than \$70 billion, \$6.25 billion of which is a direct benefit of offshore oil and gas. The industry supports 320,000 direct and indirect jobs in the state, including 17,000 direct jobs from offshore oil and gas. The industry pays \$1.4 billion in royalties, taxes, and fees. The industry supports more than \$12 billion in household earnings, \$1.5 billion of which is from offshore oil and gas. The presentation also celebrated the industry's speedy recovery after Hurricanes Katrina and Rita as a sign that the industry is committed to Louisiana.

The Economic Impacts of the Oil and Natural Gas Industry on the U.S. Economy: Employment, Labor Income and Value Added. (PwC, September 2009)

In 2009, PricewaterhouseCoopers (PwC) produced a report that quantified the oil and natural gas industry's contribution to the economy at national and state levels in 2007. PwC estimated the U.S. oil and gas industry contributed 9.2 million full- and part-time jobs, 5.2% of total employment, with wages totaling \$558 billion, 6.3% of national labor income. In Colorado, the contribution was estimated at 190,408 jobs, 6.0% of the state's employment, paying wages of \$12.4 billion, 7.7% of labor income in the state. PwC estimated the industry contributed value added of over \$1 trillion, 7.5% of U.S. GDP in 2007. In Colorado, the oil and natural gas industry's value added was estimated at \$24.1 billion, 9.3% of GSP. PwC defined the industry broadly, including oil and gas extraction, drilling oil and gas wells, support activities for oil and gas

operations, natural gas distribution, oil and gas pipeline and related structures construction, petroleum refineries, petroleum lubricating oil and grease manufacturing, asphalt paving, roofing, and saturated materials manufacturing, petroleum and petroleum products merchant wholesalers, pipeline transportation, gasoline stations, and fuel dealers.

The Contributions of the Natural Gas Industry to the U.S. National and State Economies – 2009 (IHS Global Insight, 2009)

At the request of America's Natural Gas Alliance (ANGA), IHS Global Insight measured the contribution of natural gas to the U.S. economy. The study found that in 2008, 2.8 million jobs, 2.1% of total U.S. employment, were attributable to the natural gas industry, including more than 600,000 direct jobs, over 700,000 estimated indirect jobs, and approximately 1.5 million induced jobs. The study estimated the natural gas industry's value-added economic impact at approximately \$385 billion, 2.7% of U.S. output, including \$170 billion of direct output. Labor income in 2008 was more than \$180 billion for total jobs, including \$70 billion for direct natural gas jobs. The number of workers, value added, and labor income associated with providing natural gas to consumers all increased from 2006 until 2008. Estimates of indirect and induced impacts were found using the IMPLAN model and IHS Global Insight's Business market Insights modeling system.

Oil and Gas Economic Impact Analysis – 2007 (McDonald et al., 2007)

In 2007, Booz Allen and the Colorado Energy Research Institute completed an analysis of the oil and gas industry's contribution to the state of Colorado in terms of employment, income, gross revenues, and taxes. A regional economic model used site-specific information and more macro, secondary data to estimate the industry's economic contribution. The analysis indicates oil- and gas-related activities produce \$22.9 billion in total economic output to the state of Colorado, 6.1% of the economy, much of which is attributed to extraction activities (\$18.8 billion). The analysis excludes expenditures associated with development, gathering, and in-basin transportation. Colorado oil and gas activity employs approximately 71,000 people and generates approximately 118,500 indirect and induced jobs. Employment multipliers vary widely between different segments: 2.01 in drilling, completion, and recompletion; 5.63 in extraction; 1.8 in mineral royalty and lease payments; and 1.51 in extraction taxes. The oil and gas industries pay an estimated \$679 million in taxes, employees pay approximately \$52 million, generated economic activity contributes an additional \$73.7 million in business taxes, and \$65.5 million in personal income taxes.

Analysis of the Social, Economic and Environmental Effects of Maintaining Oil and Gas Exploration and Production Moratoria on and Beneath Federal Lands. – 2010 (Ratafia-Brown, Irby, and Perry, 2010)

In 2010, a project was completed in which the Gas Technology Institute assessed oil and natural gas recoverable resources, and the Science Applications International Corporation analyzed the social, economic, and environmental effects of maintaining oil and gas exploration and production through 2030. The economic projections forecasted unfavorable changes in years to come. Average annual energy prices are expected to increase: natural gas prices by 17%, electricity prices by 5%, and motor gasoline prices by 3%. Energy costs to consumers are projected to increase cumulatively by \$2.35 trillion (\$3,700/capita), or 5% annually. Real industrial shipments costs are expected to decrease cumulatively by \$1.68 trillion, or 1.2% annually. Import costs for crude oil, petroleum products, and natural gas are projected to increase cumulatively by \$1.6 trillion, or 38% annually. Employment in energy-intensive industries is expected to fall by 13 million jobs, or 0.36% annually.

Wyoming Oil and Gas Economic Contribution Study – 2008 (Wise Bender et al., 2008)

In 2008, Booz Allen and the University of Wyoming Department of Agricultural and Applied Economics completed an analysis of the oil and gas industry's contribution to the State of Wyoming in terms of employment, income, gross revenues, and taxes. A regional economic model used site-specific information and more macro, secondary data to estimate the industry's economic contribution. The analysis indicates oil- and gas-related activities produce \$18.6 billion in total economic output to the state of Wyoming, much of which is attributed to extraction activities (\$11.9 billion). The analysis excludes expenditures associated pipeline investments, refinery impacts, and some capital investments. Wyoming oil and gas activity employs approximately 20,090 people and generates approximately 73,229 indirect and induced jobs. Employment multipliers vary widely between different segments: 1.32 in drilling, completion, and recompletion; 1.75 in extraction; and 3.65 for the total (downstream government jobs total 25,149). The oil and gas industries pay an estimated \$2.0 billion in extraction tax revenue and over \$62.8 million in sales and use taxes from development activities.

APPENDIX 2: VALUE OF PRODUCTION BY COUNTY, 2010 (IN MILLIONS)

County	Natural Gas	CO2	Oil	Total	Percent	Cumulative Percent
Garfield	\$2,700	\$0	\$148	\$2,848	31.0%	31.0%
Weld	\$952	\$0	\$1,427	\$2,379	25.9%	56.8%
La Plata	\$1,704	\$0	\$2	\$1,706	18.6%	75.4%
Rio Blanco	\$393	\$0	\$317	\$710	7.7%	83.1%
Las Animas	\$452	\$0	\$0	\$452	4.9%	88.0%
Montezuma	\$2	\$169	\$10	\$181	2.0%	90.0%
Yuma	\$167	\$0	\$0	\$167	1.8%	91.8%
Mesa	\$157	\$0	\$6	\$163	1.8%	93.6%
Cheyenne	\$6	\$0	\$100	\$106	1.2%	94.7%
Moffat	\$81	\$0	\$19	\$100	1.1%	95.8%
Adams	\$28	\$0	\$32	\$60	0.7%	96.5%
Washington	\$7	\$0	\$35	\$42	0.5%	96.9%
Archuleta	\$39	\$0	\$0	\$40	0.4%	97.4%
Huerfano	\$3	\$33	\$0	\$35	0.4%	97.8%
Boulder	\$15	\$0	\$17	\$31	0.3%	98.1%
San Miguel	\$26	\$0	\$1	\$27	0.3%	98.4%
Lincoln	\$0	\$0	\$20	\$20	0.2%	98.6%
Logan	\$1	\$0	\$14	\$16	0.2%	98.8%
Kiowa	\$2	\$0	\$13	\$15	0.2%	98.9%
Fremont	\$0	\$0	\$14	\$14	0.1%	99.1%
Broomfield	\$5	\$0	\$5	\$10	0.1%	99.2%
Larimer	\$1	\$0	\$8	\$9	0.1%	99.3%
Baca	\$6	\$0	\$4	\$9	0.1%	99.4%
Jackson	\$0	\$1	\$8	\$9	0.1%	99.5%
Gunnison	\$7	\$0	\$0	\$7	0.1%	99.6%
Morgan	\$0	\$0	\$6	\$6	0.1%	99.6%
Arapahoe	\$2	\$0	\$4	\$5	0.1%	99.7%
Prowers	\$4	\$0	\$1	\$4	0.0%	99.8%
Dolores	\$2	\$0	\$2	\$4	0.0%	99.8%
Phillips	\$4	\$0	\$0	\$4	0.0%	99.8%
Routt	\$0	\$0	\$4	\$4	0.0%	99.9%
Denver	\$2	\$0	\$1	\$3	0.0%	99.9%
Elbert	\$1	\$0	\$2	\$3	0.0%	100.0%
Bent	\$1	\$0	\$1	\$2	0.0%	100.0%
Kit Carson	\$1	\$0	\$1	\$1	0.0%	100.0%
Sedgwick	\$0	\$0	\$0	\$0	0.0%	100.0%
Delta	\$0	\$0	\$0	\$0	0.0%	100.0%
Alamosa	\$0	\$0	\$0	\$0	0.0%	100.0%
Chaffee	\$0	\$0	\$0	\$0	0.0%	100.0%
Clear Creek	\$0	\$0	\$0	\$0	0.0%	100.0%
Conejos	\$0	\$0	\$0	\$0	0.0%	100.0%
Costilla	\$0	\$0	\$0	\$0	0.0%	100.0%
Crowley	\$0	\$0	\$0	\$0	0.0%	100.0%
Custer	\$0	\$0	\$0	\$0	0.0%	100.0%
Douglas	\$0	\$0	\$0	\$0	0.0%	100.0%
Eagle	\$0	\$0	\$0	\$0	0.0%	100.0%
El Paso	\$0	\$0	\$0	\$0	0.0%	100.0%
Gilpin	\$0	\$0	\$0	\$0	0.0%	100.0%
Grand	\$0	\$0	\$0	\$0	0.0%	100.0%
Hinsdale	\$0	\$0	\$0	\$0	0.0%	100.0%
Jefferson	\$0	\$0	\$0	\$0	0.0%	100.0%
Lake	\$0	\$0	\$0	\$0	0.0%	100.0%

Mineral	\$0	\$0	\$0	\$0	0.0%	100.0%
Montrose	\$0	\$0	\$0	\$0	0.0%	100.0%
Otero	\$0	\$0	\$0	\$0	0.0%	100.0%
Ouray	\$0	\$0	\$0	\$0	0.0%	100.0%
Park	\$0	\$0	\$0	\$0	0.0%	100.0%
Pitkin	\$0	\$0	\$0	\$0	0.0%	100.0%
Pueblo	\$0	\$0	\$0	\$0	0.0%	100.0%
Rio Grande	\$0	\$0	\$0	\$0	0.0%	100.0%
Saguache	\$0	\$0	\$0	\$0	0.0%	100.0%
San Juan	\$0	\$0	\$0	\$0	0.0%	100.0%
Summit	\$0	\$0	\$0	\$0	0.0%	100.0%
Teller	\$0	\$0	\$0	\$0	0.0%	100.0%
Total	\$6,771	\$203	\$2,220	\$9,194	100.0%	-

Sources: Colorado Geological Survey, Colorado Department of Local Affairs.

APPENDIX 3: SEVERANCE AND MINERAL LEASE DISTRIBUTIONS – ALL COLORADO COUNTIES, 2010

	Coal Distribution (\$)	Metals Distribution (\$)	Oil/Gas Distribution (\$)	Permits	Permits Distribution (\$)	Mineral Prod Index	Mineral Prod Distribution (\$)	Total Distributions (\$)
Adams	389	4,385	196,453	92	32,047	8	9,948	243,222
Alamosa	0	0	1,445	0	0	0	0	1,445
Arapahoe	194	3,051	71,503	10	3,471	1	841	79,060
Archuleta	0	0	3,611	11	3,818	10	11,610	19,039
Baca	0	0	1,445	3	1,041	2	2,224	4,710
Bent	0	0	0	0	0	0	483	483
Boulder	0	477	35,390	178	61,894	5	5,416	103,177
Broomfield	194	191	9,389	33	11,455	1	1,560	22,789
Chaffee	0	1,144	0	29	9,949	0	0	11,093
Cheyenne	0	0	20,223	12	4,165	14	16,805	41,193
Clear Creek	0	14,109	722	201	69,642	119	141,279	225,753
Conejos	0	0	2,167	0	0	0	0	2,167
Costilla	0	0	722	29	9,949	0	0	10,671
Crowley	0	95	722	0	0	0	0	818
Delta	175,212	0	20,223	315	109,438	40	47,505	352,378
Denver	0	2,002	70,781	0	0	1	764	73,547
Dolores	583	0	28,890	50	17,238	30	35,556	82,268
Douglas	194	286	15,890	0	0	0	0	16,370
Eagle	0	0	2,889	29	9,949	0	0	12,838
El Paso	0	4,671	15,167	2	694	0	0	20,533
Elbert	0	95	4,334	1	347	0	496	5,272
Fremont	0	8,198	11,556	42	14,461	1	542	34,758
Garfield	777	0	387,128	2,153	747,341	585	696,678	1,831,925
Gilpin	0	572	722	115	39,796	0	0	41,090
Grand	0	13,155	0	0	0	45	53,563	66,718
Gunnison	2,137	0	722	327	113,603	349	416,194	532,656
Hinsdale	0	0	0	86	29,847	0	0	29,847
Huerfano	0	0	16,612	29	9,949	11	12,769	39,330
Jackson	194	0	2,889	48	16,544	1	1,584	21,211
Jefferson	389	11,821	66,447	29	9,949	0	7	88,612
Kiowa	0	0	2,167	7	2,430	1	1,481	6,078
Kit Carson	0	0	8,667	7	2,430	0	265	11,361
La Plata	3,302	0	149,506	499	173,085	440	523,796	849,689
Lake	0	1,239	0	115	39,796	0	0	41,035

Larimer	0	95	94,615	12	4,165	1	1,038	99,914
Las Animas	0	0	262,178	145	50,444	127	150,941	463,564
Lincoln	0	0	2,167	44	15,273	1	1,718	19,158
Logan	0	0	34,668	9	3,124	2	1,734	39,527
Mesa	11,849	0	1,252,387	570	197,965	34	40,474	1,502,676
Mineral	0	95	0	29	9,949	0	0	10,044
Moffat	146,074	0	47,669	538	186,834	202	240,686	621,264
Montezuma	3,691	0	57,780	96	33,436	146	174,238	269,145
Montrose	18,454	0	24,557	573	198,978	12	14,677	256,665
Morgan	0	95	72,948	1	347	1	713	74,103
Otero	0	0	722	0	0	0	0	722
Ouray	194	95	0	143	49,744	0	0	50,034
Park	0	7,531	1,445	89	30,888	0	14	39,878
Phillips	0	0	5,056	45	15,620	1	931	21,608
Pitkin	0	0	0	29	9,949	0	0	9,949
Prowers	0	0	4,334	1	347	1	1,226	5,907
Pueblo	389	667	7,945	0	0	0	0	9,001
Rio Blanco	29,331	763	170,452	778	270,032	169	200,790	671,368
Rio Grande	0	0	722	1	347	0	0	1,069
Routt	28,749	0	5,056	432	149,928	258	306,927	490,659
Saguache	194	0	0	59	20,592	0	0	20,786
San Juan	0	0	0	115	39,796	0	0	39,796
San Miguel	194	0	5,056	357	123,899	10	11,514	140,663
Sedgwick	0	0	1,445	19	6,595	0	35	8,075
Summit	0	2,860	2,889	86	29,847	0	0	35,596
Teller	0	16,301	2,167	115	39,796	24	28,953	87,216
Washington	0	0	6,500	1	347	5	5,435	12,282
Weld	194	191	938,929	1,477	512,581	308	367,081	1,818,976
Yuma	0	0	108,338	105	36,448	43	51,108	195,894
Total	422,878	94,185	4,258,406	10,318	3,581,601	3,007	3,581,601	11,938,671

Source: Colorado Department of Local Affairs.

APPENDIX 4: COLORADO INDIVIDUAL STATISTICS OF INCOME, ADJUSTED GROSS INCOME TAX, 2008

Minimum	Maximum	Midpoint	Number of Returns	Colorado Gross Tax (Millions)	Colorado Net Tax (Millions)	Colorado Gross Tax per Return	Colorado Net Tax per Return	Estimated Colorado Gross Tax Rate	Estimated Colorado Net Tax Rate
\$250,000	Over \$250,000	\$250,000	40,134	\$887.8	\$799.2	\$22,120.25	\$19,913.01	NA	NA
\$100,000	\$250,000	\$175,000	277,342	\$1,304.1	\$1,274.0	\$4,701.99	\$4,593.61	2.69%	2.62%
\$75,001	\$100,000	\$87,501	202,834	\$506.3	\$498.8	\$2,496.02	\$2,459.06	2.85%	2.81%
\$50,001	\$75,000	\$62,501	318,161	\$509.1	\$502.9	\$1,600.05	\$1,580.76	2.56%	2.53%
\$35,001	\$50,000	\$42,501	285,209	\$281.5	\$279.2	\$986.98	\$978.80	2.32%	2.30%
\$25,001	\$35,000	\$30,001	248,979	\$146.2	\$145.3	\$587.18	\$583.73	1.96%	1.95%
\$20,001	\$25,000	\$22,501	135,930	\$47.1	\$46.8	\$346.36	\$344.36	1.54%	1.53%
\$15,001	\$20,000	\$17,501	139,486	\$27.7	\$27.5	\$198.64	\$197.51	1.14%	1.13%
\$10,001	\$15,000	\$12,501	130,686	\$10.3	\$10.2	\$78.48	\$77.99	0.63%	0.62%
\$5,001	\$10,000	\$7,501	112,812	\$0.6	\$0.6	\$5.27	\$5.25	0.07%	0.07%
\$0	\$5,000	\$2,500	76,617	\$0.2	\$0.2	\$2.77	\$2.77	0.11%	0.11%
(Negative Income)		NA	23,480	\$0.1	\$0.2	\$4.02	\$6.73	NA	NA
			1,991,671	\$3,720.8	\$3,584.9	\$1,868.19	\$1,799.96	NA	NA

Source: Colorado Department of Revenue, Office of Research and Analysis, Federal AGI and Tax, All Full-Year Resident Returns, 2008 Individual Income Tax Returns.

APPENDIX 5: OIL AND GAS WELLS

The following well counts are reported by the Colorado Department of Local Affairs (DOLA). The reporting of these figures varies slightly from the COGCC-reported wells.

According to DOLA, the number of primary oil and gas wells was at its highest in 2010 over the 10-year look back. Colorado had 19,381 primary oil wells and 36,531 primary gas wells.

TABLE 37: OIL AND GAS WELLS, 2006–2010

Number of Wells	2006	2007	2008	2009	2010
Oil (Primary)	10,654	14,317	16,574	17,961	19,381
Oil (Secondary)	1,020	1,120	1,100	1,099	432
Gas (Primary)	21,880	27,571	31,733	33,914	36,531
Gas (Secondary)	20	51	1,826	73	86

Source: Division of Property Taxation, Colorado Department of Local Affairs.

Among the counties highlighted, Weld County had by far the largest number of wells in 2010.

TABLE 38: OIL AND GAS WELLS BY COUNTY, 2010

Number of Wells	Cheyenne	Garfield	La Plata	Las Animas	Mesa	Rio Blanco	Weld	Yuma
Oil (Primary)	107	0	55	0	847	600	15,567	0
Oil (Secondary)	169	0	0	0	0	6	70	0
Gas (Primary)	22	6,620	3,075	2,982	997	954	15,567	3,483
Gas (Secondary)	1	0	0	0	0	0	70	0

Source: Division of Property Taxation, Colorado Department of Local Affairs.

APPENDIX 6: OIL AND GAS EMPLOYMENT AND WAGES

TABLE 39: COLORADO COVERED EMPLOYMENT

NAICS	Industry (Employees)	2006	2007	2008	2009	2010
44711	Extraction	5,561	6,908	7,882	7,877	7,828
44719	Drilling Wells	2,951	3,693	4,005	2,026	2,146
45431	Support Activities	6,391	8,307	10,372	8,446	8,847
23712	Oil and gas pipeline and related structures construction	2,988	2,819	3,657	2,684	2,372
32411	Petroleum refineries	468	522	575	606	603
324191	Petroleum lubricating oil and grease mfg.	64	64	56	50	43
32412	Asphalt paving, roofing, and saturated materials mfg.	359	286	284	225	208
333132	Oil and gas field machinery and equipment mfg.	148	170	227	220	223
4247	Petroleum and petro. products merchant wholesalers	1,413	1,496	1,579	1,485	1,411
486	Pipeline transportation	832	838	876	990	950
44711	Gasoline stations with convenience stores	11,379	11,650	11,543	11,218	11,027
44719	Other gasoline stations	1,180	1,175	1,132	1,045	997
45431	Fuel dealers	636	648	651	659	655
Total	Total Core and Noncore Employees	34,370	38,576	42,839	37,531	37,310
All	Total All Industries	2,242,012	2,292,630	2,310,865	2,201,427	2,177,010

TABLE 40: COLORADO NONEMPLOYERS

NAICS	Industry (Nonemployers)	2006	2007	2008	2009	2010
44711	Extraction	2,052	2,964	3,046	2,717	2,993
44719	Drilling Wells	167	179	168	107	113
45431	Support Activities	362	404	434	446	467
23712	Oil and gas pipeline and related structures construction	925	913	1,153	1,012	786
32411	Petroleum refineries	20	24	26	30	28
324191	Petroleum lubricating oil and grease mfg.	3	3	3	3	2
32412	Asphalt paving, roofing, and saturated materials mfg.	15	13	13	11	10
333132	Oil and gas field machinery and equipment mfg.	6	8	10	11	10
4247	Petroleum and petro. products merchant wholesalers	99	107	107	105	99
486	Pipeline transportation	173	184	186	212	203
44711	Gasoline stations with convenience stores	1,635	1,728	1,598	1,593	1,578
44719	Other gasoline stations	170	174	157	148	143
45431	Fuel dealers	91	96	90	94	94
Total	Total Core and Noncore Employees	5,718	6,797	6,991	6,489	6,526
All	Total All Industries	405,155	426,017	414,663	407,139	392,186

TABLE 41: COLORADO TOTAL WAGES OF COVERED EMPLOYMENT (IN MILLIONS)

NAICS	Industry	2006	2007	2008	2009	2010
44711	Extraction	\$719.7	\$872.3	\$1,119.6	\$1,019.7	\$1,160.3
44719	Drilling Wells	\$211.5	\$292.2	\$325.8	\$159.4	\$170.7
45431	Support Activities	\$424.6	\$600.5	\$848.1	\$581.1	\$642.6
23712	Oil and gas pipeline and related structures construction	\$170.5	\$174.9	\$260.2	\$180.5	\$152.5
32411	Petroleum refineries	\$60.6	\$64.2	\$87.1	\$72.6	\$64.2
324191	Petroleum lubricating oil and grease mfg.	\$3.2	\$3.4	\$3.1	\$2.8	\$2.5
32412	Asphalt paving, roofing, and saturated materials mfg.	\$18.8	\$15.7	\$17.3	\$16.2	\$14.7
333132	Oil and gas field machinery and equipment mfg.	\$8.2	\$9.3	\$14.3	\$12.8	\$16.1
4247	Petroleum and petro. products merchant wholesalers	\$84.0	\$101.4	\$87.8	\$80.1	\$86.1
486	Pipeline transportation	\$99.5	\$104.0	\$90.2	\$99.2	\$103.0
44711	Gasoline stations with convenience stores	\$198.1	\$210.4	\$212.3	\$209.4	\$206.5
44719	Other gasoline stations	\$26.7	\$27.3	\$28.5	\$26.8	\$27.0
45431	Fuel dealers	\$25.0	\$27.1	\$27.5	\$28.3	\$27.9
Total	Total Core and Noncore Wages	\$2,050.4	\$2,502.6	\$3,121.8	\$2,488.9	\$2,674.1

TABLE 42: COLORADO NONEMPLOYERS TOTAL RECEIPTS (IN MILLIONS)

NAICS	Industry	2006	2007	2008	2009	2010
44711	Extraction	\$161.7	\$267.0	\$343.6	\$162.9	\$289.3
44719	Drilling Wells	\$13.5	\$16.6	\$16.1	\$7.7	\$9.3
45431	Support Activities	\$27.1	\$34.1	\$42.0	\$28.0	\$35.1
23712	Oil and gas pipeline and related structures construction	\$80.0	\$82.0	\$109.0	\$73.1	\$65.7
32411	Petroleum refineries	\$1.9	\$2.2	\$2.7	\$2.2	\$2.1
324191	Petroleum lubricating oil and grease mfg.	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
32412	Asphalt paving, roofing, and saturated materials mfg.	\$0.6	\$0.5	\$0.5	\$0.5	\$0.5
333132	Oil and gas field machinery and equipment mfg.	\$0.3	\$0.3	\$0.4	\$0.4	\$0.5
4247	Petroleum and petro. products merchant wholesalers	\$6.8	\$7.3	\$6.5	\$5.6	\$6.4
486	Pipeline transportation	\$32.1	\$35.4	\$32.0	\$28.1	\$33.5
44711	Gasoline stations with convenience stores	\$45.1	\$47.1	\$45.3	\$39.9	\$44.2
44719	Other gasoline stations	\$6.1	\$6.1	\$6.1	\$5.1	\$5.8
45431	Fuel dealers	\$5.7	\$6.1	\$5.9	\$5.4	\$6.0
Total	Total Core and Noncore Wages	\$381.0	\$505.0	\$610.3	\$359.0	\$498.4

TABLE 43: COLORADO AVERAGE WAGES OF COVERED EMPLOYMENT AND NONEMPLOYER RECEIPTS

NAICS	Industry	2006	2007	2008	2009	2010
44711	Extraction	\$115,778	\$115,406	\$133,897	\$111,630	\$133,962
44719	Drilling Wells	\$72,146	\$79,735	\$81,952	\$78,312	\$79,680
45431	Support Activities	\$66,891	\$72,854	\$82,369	\$68,503	\$72,754
	<i>Average Core</i>	<i>\$89,115</i>	<i>\$92,748</i>	<i>\$104,037</i>	<i>\$90,604</i>	<i>\$103,029</i>
23712	Oil and gas pipeline and related structures construction	\$64,013	\$68,827	\$76,758	\$68,608	\$69,082
32411	Petroleum refineries	\$128,185	\$121,450	\$149,394	\$117,555	\$105,034
324191	Petroleum lubricating oil and grease mfg.	\$49,800	\$52,871	\$54,398	\$53,855	\$56,314
32412	Asphalt paving, roofing, and saturated materials mfg.	\$51,886	\$54,180	\$60,074	\$70,881	\$69,964
333132	Oil and gas field machinery and equipment mfg.	\$54,700	\$53,874	\$61,974	\$57,245	\$71,385
4247	Petroleum and petro. products merchant wholesalers	\$60,057	\$67,872	\$55,957	\$53,898	\$61,262
486	Pipeline transportation	\$130,943	\$136,454	\$115,032	\$105,893	\$118,446
44711	Gasoline stations with convenience stores	\$18,685	\$19,247	\$19,602	\$19,463	\$19,887
44719	Other gasoline stations	\$24,244	\$24,800	\$26,875	\$26,712	\$28,759
45431	Fuel dealers	\$42,193	\$44,506	\$44,963	\$44,788	\$45,242
	<i>Average Noncore</i>	<i>\$38,631</i>	<i>\$40,354</i>	<i>\$43,341</i>	<i>\$39,692</i>	<i>\$40,354</i>
Average	Core and Noncore Wages	\$60,649	\$66,283	\$74,898	\$64,695	\$72,373

Sources: Bureau of Labor Statistics, Quarterly Census of Employment and Average Wages; U.S. Census Bureau, <http://www.census.gov/econ/nonemployer/index.html>, retrieved July 29, 2011.

APPENDIX 7: EMPLOYMENT (EMPLOYERS AND NONEMPLOYERS), ALL COLORADO INDUSTRIES, 2010

TABLE 44: COLORADO EMPLOYMENT BY INDUSTRY (EMPLOYERS AND NONEMPLOYERS), 2010

Industry	NAICS	Colorado	Cheyenne	Garfield	La Plata	Las Animas	Mesa	Rio Blanco	Weld	Yuma
Agriculture, Forestry, Fishing, Hunting	11	17,433	27	241	181	58	535	88	3,612	750
Mining	21	27,699	97	2,005	781	251	3,036	840	3,309	242
Utilities	22	8,581	ND	218	125	31	231	49	263	4
Construction	23	164,507	ND	3,792	2,712	514	5,197	304	8,873	217
Manufacturing	31-33	132,012	ND	373	619	147	2,733	73	10,600	87
Wholesale Trade	42	97,455	56	778	572	99	2,424	ND	3,679	219
Retail Trade	44-45	270,576	83	3,234	3,438	723	8,768	233	9,310	533
Transportation & Warehousing	48-49	69,813	27	797	724	169	2,600	115	2,872	156
Information	51	78,420	ND	204	501	42	986	16	1,075	55
Finance & Insurance	52	114,090	73	644	1,025	189	2,255	58	3,687	200
Real Estate, Rental & Leasing	53	88,859	ND	1,435	1,057	159	2,336	57	2,478	106
Professional & Technical Services	54	239,914	ND	1,715	1,904	162	3,631	106	4,064	118
Management Of Companies & Enterprises	55	28,818	ND	148	46	4	153	ND	1,085	14
Administrative & Waste Services	56	163,548	ND	1,258	1,431	156	3,712	141	5,201	96
Educational Services	61	40,123	-	311	321	26	419	11	729	7
Health Care & Social Assistance	62	262,797	8	2,390	3,245	574	9,405	72	9,156	350
Arts, Entertainment & Recreation	71	67,387	-	603	1,016	105	1,356	37	1,498	40
Accommodation & Food Services	72	222,628	53	2,523	2,946	529	5,969	270	5,965	306
Other Services	81	114,202	35	1,259	1,248	331	3,162	111	4,078	187
Non-classifiable	99	434	-	-	-	-	-	-	2	-
Government	Govt	374,911	326	4,757	5,424	1,959	9,275	1,086	14,055	1,000
Total All Industries	Total	2,584,208	935	28,684	29,316	6,228	68,183	3,686	95,591	4,689

APPENDIX 8: GROSS DOMESTIC PRODUCT

GDP is the total value added by resident producers – that is, each producer’s gross output, net of intermediate input costs. To measure the oil and gas industry’s contribution to GDP in Colorado, value-added numbers were collected and estimated. Value added from extraction and fuel dealers is publicly available through 2009; 2010 estimates were calculated by applying the subsectors’ 2006–2009 average value added per employee to 2010 employment. The rest of the estimations were calculated by applying broad sectors’ value added per employee to employment for the supersectors for each year. In 2010, Colorado core oil and gas contributed \$8.8 billion to nominal GDP (\$7.9 billion real GDP) (Table 45 and Table 46). Including related industries, oil and gas in Colorado contributed \$11.5 billion to GDP (\$10.3 billion real GDP), 4.5% of Colorado’s total nominal GDP (4.4% real GDP). (Note: “Real GDP” refers to inflation-adjusted GDP.)

TABLE 45: CONTRIBUTIONS TO COLORADO NOMINAL GDP, OIL AND GAS, 2006–2010 (IN MILLIONS)

	2006	2007	2008	2009	2010
Core Industries Value Added	\$7,519	\$7,308	\$10,730	\$7,077	\$8,844
Extraction (2010 est.)	\$6,122	\$5,359	\$8,124	\$5,308	\$7,033
Drilling Wells (est.)	\$441	\$600	\$726	\$342	\$354
Support Activities (est.)	\$956	\$1,349	\$1,880	\$1,427	\$1,458
Related Industries Value Added	\$2,415	\$2,497	\$3,250	\$2,756	\$2,670
Oil and gas pipeline and related structures construction (est.)	\$232	\$220	\$288	\$220	\$198
Petroleum refineries (est.)	\$510	\$597	\$1,039	\$902	\$834
Petroleum lubricating oil and grease manufacturing (est.)	\$391	\$327	\$513	\$335	\$287
Asphalt paving, roofing, and saturated materials manufacturing (est.)	\$69	\$73	\$101	\$75	\$59
Oil and gas field machinery and equipment manufacturing (est.)	\$16	\$20	\$28	\$29	\$32
Petroleum and petroleum products merchant wholesalers (est.)	\$177	\$198	\$212	\$199	\$199
Pipeline transportation (est.)	\$650	\$676	\$642	\$635	\$655
Gasoline stations with convenience stores (est.)	\$67	\$68	\$63	\$59	\$59
Other gasoline stations (est.)	\$36	\$38	\$36	\$37	\$39
Fuel dealers (2010 est.)	\$266	\$280	\$327	\$265	\$308
Colorado - All Industries Total Nominal GDP	\$230,206	\$242,900	\$254,218	\$250,664	\$257,641
Total Core and Related Value Added	\$9,934	\$9,805	\$13,980	\$9,834	\$11,514
Percent of Colorado GDP	4.3%	4.0%	5.5%	3.9%	4.5%

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

TABLE 46: CONTRIBUTIONS TO COLORADO REAL GDP, OIL AND GAS, 2006–2010 (IN MILLIONS, CHAINED 2005 DOLLARS)

	2006	2007	2008	2009	2010
Core Industries Value Added	\$6,985	\$6,189	\$6,880	\$8,726	\$7,914
Extraction (2010 est.)	\$6,062	\$5,019	\$5,293	\$7,478	\$6,749
Drilling Wells (est.)	\$291	\$360	\$442	\$242	\$227
Support Activities (est.)	\$631	\$810	\$1,145	\$1,007	\$937
Related Industries Value Added	\$2,205	\$2,165	\$2,722	\$2,726	\$2,410
Oil and gas pipeline and related structures construction (est.)	\$212	\$189	\$245	\$183	\$169
Petroleum refineries (est.)	\$441	\$459	\$792	\$964	\$722
Petroleum lubricating oil and grease manufacturing (est.)	\$338	\$252	\$391	\$358	\$249
Asphalt paving, roofing, and saturated materials manufacturing (est.)	\$60	\$56	\$77	\$80	\$51
Oil and gas field machinery and equipment manufacturing (est.)	\$16	\$21	\$28	\$29	\$31
Petroleum and petroleum products merchant wholesalers (est.)	\$172	\$192	\$203	\$207	\$208
Pipeline transportation (est.)	\$635	\$661	\$615	\$611	\$631
Gasoline stations with convenience stores (est.)	\$66	\$67	\$60	\$57	\$57
Other gasoline stations (est.)	\$35	\$37	\$35	\$36	\$37
Fuel dealers (2010 est.)	\$231	\$233	\$275	\$202	\$255
Colorado - All Industries Total Real GDP	\$223,090	\$228,660	\$233,039	\$231,848	\$235,152
Total Core and Related Value Added	\$9,190	\$8,354	\$9,601	\$11,453	\$10,324
Percent of Colorado GDP	4.1%	3.7%	4.1%	4.9%	4.4%

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

Manufacturing and retail had higher values added than oil and gas over the past five years. Manufacturing had the highest value added in 2010, \$18 billion (\$17.3 billion real GDP), contributing 7% of Colorado's nominal GDP (7.4% real GDP). Estimates of gaming's contribution to GDP were calculated by applying the value added per employee of the amusement, gambling, and recreation industries subsector to employment figures in gaming. Amusement, gambling, and recreation contributed the least value added of the industries considered, 0.6% of Colorado's GDP in 2009 (0.6% real GDP).

TABLE 47: CONTRIBUTIONS TO COLORADO NOMINAL GDP, OTHER INDUSTRIES, 2006–2010 (IN MILLIONS, CURRENT DOLLARS)

	2006	2007	2008	2009	2010
Manufacturing	\$16,026	\$17,277	\$17,601	\$17,112	\$17,959
Retail Trade	\$14,200	\$14,723	\$14,047	\$13,488	\$14,067
Amusement, Gambling, and Recreation	\$1,607	\$1,701	\$1,624	\$1,566	NA
Colorado Nominal GDP	\$230,206	\$242,900	\$254,218	\$250,664	\$257,641
Oil and Gas Core and Related	\$9,934	\$9,805	\$13,980	\$9,834	\$11,514

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

TABLE 48: CONTRIBUTIONS TO COLORADO REAL GDP, OTHER INDUSTRIES, 2006–2010
(IN MILLIONS, CHAINED 2005 DOLLARS)

	2006	2007	2008	2009	2010
Manufacturing	\$16,157	\$17,850	\$18,061	\$16,857	\$17,333
Retail Trade	\$13,862	\$14,380	\$13,463	\$12,995	\$13,545
Amusement, Gambling, and Recreation	\$1,575	\$1,657	\$1,554	\$1,473	NA
Colorado Real GDP	\$223,090	\$228,660	\$233,039	\$231,848	\$235,152
Oil and Gas Core and Related	\$9,190	\$8,354	\$9,601	\$11,453	\$10,324

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

APPENDIX 9: GAMING DATA

TABLE 49: DIVISION OF GAMING REVENUES, EXPENDITURES, AND CHANGES IN FUND BALANCE

	FY2009	FY2010
Revenues		
Gaming taxes	\$94,906,581	\$107,669,366
License and application fees	\$632,999	\$634,639
Background investigations	\$242,760	\$358,247
Fines and other	\$12,818	\$61,443
Interest income	\$1,202,511	\$1,099,905
Net increase in fair value of investments	\$447,352	\$985,910
Total revenues	\$97,445,021	\$110,809,510
Expenditures		
Salaries and benefits	\$6,363,941	\$6,595,537
State agency services	\$3,778,776	\$3,976,102
Materials, supplies, and services	\$327,313	\$286,606
Travel and automobiles	\$218,866	\$164,466
Computer services	\$136,022	\$129,776
Professional services	\$70,867	\$46,782
Other	\$57,528	\$48,449
Telephone	\$70,241	\$73,205
Background investigation	\$28,712	\$64,961
Leased space	\$158,074	\$150,478
Capital outlay	\$41,385	\$836,179
Total expenditures	\$11,251,725	\$12,372,541
Excess of revenues over expenditures	\$86,193,296	\$98,436,969
Other financing uses		
Limited gaming distribution	-\$85,281,086	-\$88,812,000
Net change in fund balance	\$912,210	\$9,624,969
Fund balance, beginning of year	\$2,119,297	\$3,031,507
Fund balance, end of year	\$3,031,507	\$12,656,476

Source: Division of Gaming, Colorado Department of Revenue, <http://www.colorado.gov/cs/Satellite?c=Page&cid=1213781235349&pagename=Rev-Gaming%2FRGMLayout>, retrieved August 30, 2011.